The Theory of the Firm and Corporate Governance: An Empirical Analysis

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A submission presented in partial fulfilment of the requirements of the University of Glamorgan/Prifysgol Morgannwg for the degree of Doctor of Philosophy

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Abstract

In order to test the theory of the firm and alternative theories of firm behaviour, primary data was collected from 310 managers of UK-based firms. This primary data was then combined with secondary data collated from the Financial Analysis Made Easy (FAME) database and the FTSE ISS Corporate Governance Index. This data was then used to construct a number of binary probit models to test the validity of competing theories of the firm. Finally, the data was used to test an original hypothesis, that the level of corporate governance within a firm's management structure is the factor that determines if the managers of the firm will aim for a maximum level of profits.

The hypothesis offered here is that it is not, as previously suggested, the percentage of shares held by any one individual, the overall ownership structure, the size of the firm or indeed any firm, market or industry-specific variable that determines if a firm will aim to maximize profits. The relevant factor that determines if a firm will aim to maximize profits is the level of corporate governance within the firm's management structure. Regardless of any other variable, a firm with a high degree of corporate governance is more likely to aim to profit maximize than a firm with a low level of corporate governance.

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Chapter 1

Introduction

1.1 Introducing the Debate

The aim of managers of businesses has long been a source of keen debate within economics. Although Marshall (1890) is often attributed with developing the framework for the neo-classical theory of the firm in fact many economists have contributed to this area and no single person can rightly be credited with this feat. What is true is that there are at least two different interpretations of the term profit maximization, and of the place that it holds within the theory of the firm. On one hand, profit maximization can be interpreted as a simple tautology [marginal revenue (MR) = marginal costs (MC)] which is supposed to approximate how firms act in the real world. Alternatively, the idea of profit maximization can be interpreted as a central business objective. This simple business objective is that the average senior decision maker within a firm will aim to increase profits rather than decrease them. If we follow this objective through to its logical conclusion, then the end result of decisions that increase profits is a maximum level of profit.

These different interpretations of the meaning of profit maximization undoubtedly account for a large proportion of the ongoing debate concerning the validity of the theory of the firm. However, this not-so-subtle difference of interpretation cannot be held responsible for all the numerous opinions concerning the validity of the theory of the firm.

Many economists have attempted to falsify the idea of profit maximization (Hall and Hitch, 1939; Lester, 1946 and 1947; Shipley, 1983) and many more have developed new theories of the firm (Baumol, 1959; Simon, 1959; Williamson, 1964; Marris, 1964 *etc*). However, the traditional theory of the firm remains the clear winner in terms of being used as a tool for academic and educational purposes. Indeed, although many economists are happy to completely refute the theory of the firm, they still cling to it for use in their research and

teaching. This is as true today as it was in the middle of the twentieth century after the publication of Hall and Hitch's (1939) original critique. As Lazear points out,

> "Our empirical analyses in the field are attempts to test models that are based on maximizing behavior. Even when evidence suggests that the theories are wrong, we do not drop the assumption of maximization. Instead, our approach is to think more carefully about the nature of the model set up, but not about the rationality of the individuals making the choices. Economists are rarely willing to assume that individuals simply do not know what they are doing." (Lazear, 2000; p 612)

Although being able to criticise your own area of expertise is an admirable trait, it remains a strange situation that many economists are willing to continue using models and methods based on a premise that they hold to be false.

The most consistent criticism of the neoclassical theory of the firm is that it was developed to deal with small owner-controlled firms and cannot accommodate the complexities of large Public Limited Companies (PLCs). In fact, it is this failure to deal with the separation of ownership from control that is at the heart of most new theories of the firm (Managerial, Agency, Contract etc). Most firms in the UK are small firms, but large PLCs are very important to the economy as a whole as they accounted for 39.6% of employment in the UK and 41.2% of the total turnover produced by UK-based firms in 2003. This fact explains economists' fascination with a small number of, albeit important, large firms (Griffiths and Wall, 2004).

It is argued that, due to the separation of ownership from control, managers of large joint stock firms do not need to aim for a maximum level of profits. Rather, after an adequate level of profit has been made these managers will be able to pursue other goals that maximize their own utility. However, because of the complexity of large businesses, it is possible that these other goals are not maximized either. What is not in doubt is that, legally, shareholders are the owners of firms in which they hold shares. Therefore, theoretically the managers of these firms should act in accordance with the wishes of these shareholders.

There remains a need for further research in this area to test the theory of the firm and alternative theories of firm behaviour. This is because there is still no agreement within economics concerning the validity of these theories. The majority of the previous research within this field was carried out a relatively long time ago. As a consequence it is not

applicable to up-to-date issues such as the level of corporate governance within a firm or the stakeholder/shareholder debate.

The debate concerning the rights of shareholders has led to an increased interest in the ideas of corporate governance. This interest has increased due to some large and public failings in the governance of firms and the publication of the Cadbury Report in 1992.

The level of governance within the management structure of a firm is not only relevant to shareholders but may also offer insight for economists investigating the aims and objectives of managers/owners of firms and ultimately the validity of the theory of the firm. The shareholder theories of corporate governance (Manne, 1965; Jensen and Mecking, 1976; Charkham, 1994a, 1994b and 1989; Sykes, 1994) suggest that the duty of the manager of a firm is to maximize returns to shareholders, or shareholder value as it is termed in the UK. If we assume for simplicity that, in the long run, there is a direct link between the level of profits that a firm makes and the amount of value, capital gains and dividend payments returned to the shareholders, then we can conclude that shareholders will be best served if the managers of firms aim for a maximum level of profits.

In this thesis the different interpretations of profit maximization will be explored, along with different theories of the firm. This will allow us to arrive at a considered judgment on the validity of the theory of the firm and the meaning of "profit maximization". Alternative theories of the firm will also be explored and tested. The purpose of this study is to offer a more considered view on the relevance, validity and correct meaning of the theory of the firm. Further to this, we will propose and test possible reasons for the previous ambiguities surrounding the microeconomic theories of firm behaviour.

Finally, a new hypothesis will be offered to explain the different actions of different types of firms. Rather than concentrating on the ownership and control of the firm, as managerial theories do, this new hypothesis will be based around the concept of corporate governance. We propose that the likelihood of the decision makers within a firm aiming for a maximum level of profits is linked to the level of corporate governance within a firm's governing structure. This differs from the traditional view, forwarded in the managerial theories, that the relevant issue is the type of firm (i.e. the managerially-controlled firm vs. the owner-controlled firm). This new hypothesis suggests that the idea that the separation of ownership from control will lead to managers and owners having different objectives may be held to be correct. However, we cannot assume that all managers of joint stock companies will be left to pursue their objectives free from interference from the owners of the firm.

Rather, there is a need to study the governance of the firm and to ascertain to what extent managers are free to act how they please. It is this level of discretionary behaviour that will determine whether the managers of a firm will aim for a maximum level of profit as a primary business objective. The level of discretionary behaviour will be (negatively) linked to the level of governance within the control structure of the firm.

Although we can trace the origins of the theory of the firm back to 1890 and before, we appear to be no closer to a consensus of opinion concerning the validity of the theory. It would appear that economists have accepted the fact that there are limitations to the original theory of the firm but that the alternative theories are not adequate to explain these limitations. It is intended that during this study some of these limitations will be dealt with.

1.2 Aims and Objectives

The aims and objectives of this research are to test the validity of the theory of the firm and alternative theories of firm behaviour. The main focus of the study will be on the alternative theories that seek to explain the different objectives which arise due to the existence of the separation of ownership from control. This principal-agent relationship is at the heart of most of the credible alternatives to profit maximization.

Specifically, this study will develop and test a number of hypotheses. These hypotheses will be developed from the existing economic literature on the theory of the firm. Finally, two new hypotheses will be developed and tested. These theories will be derived by combining the theory of the firm with the more recent theory that underpins the current corporate governance debate.

1.3 Research Methodology

This research study has been grounded in the postpositivist paradigm of inquiry, in which the researcher assumes that there is a certain, testable reality. It is accepted that observing this reality may prove problematic. The aim of the study is to test the theory of the firm and alternative theories of firm behaviour, using a mix of quantitative and qualitative methods. In line with the beliefs associated with the postpositivist paradigm of inquiry, it should be possible to falsify some of the existing theories of the firm and use this process of falsification to develop new, testable hypotheses. In turn, it is hoped that other authors

will offer a critique of the new hypotheses suggested in this study, and that this process of falsification will push forward our knowledge of economics.

A review of relevant economic theory has been used to develop a number of hypotheses that enable conclusions to be drawn with regard to the validity of the competing economic theories of firm behaviour.

The data utilized during this study has been collected from four main sources. Firstly, primary data concerning the business objectives of firms has been collected by using a postal questionnaire. This questionnaire was mailed to 1800 UK based firms and 310 useable responses were returned (17.2%).

This primary data was combined with firm- and industry-specific data collated from the FAME database (Financial Analyses Made Easy). This data allowed a number of binary probit models to be estimated, to test the validity of the theory of the firm and alternative theories of the firm.

The data detailed above was then combined with data collected from the FTSE ISS Corporate Governance Index, which measures the level of corporate governance within a firm's management structure. This allowed us to specify a new probit model that measured the link between a firm's business objectives and the level of corporate governance within the firm's management structure.

Finally, a small number of semi-structured interviews were undertaken to add validity to the results. By accepting the limitations of a purely quantitative approach and attempting to overcome these limitations, it is hoped that the conclusions drawn from the research will not only be reliable, but will also have a higher level of validity than would otherwise be the case.

Although it is accepted that the results from such a small number of interviews cannot be considered as representative of all the firms operating in the UK, it is hoped that by combining these results with the original data collected and a review of the existing empirical and theoretical literature, the conclusions drawn will prove to be robust and accurate.

1.4 Research Hypotheses

The first issue to be reviewed is whether firms aim for a maximum level of profits or not. Respondents to the questionnaire were asked to choose their primary business objectives from a choice of four: profit maximization, sales revenue maximization, a combination of

profits and sales, or another objective not listed. These results, combined with the responses gained during the interviews were used to validate the neoclassical theory of the firm.

Assuming that not all firms aim for a maximum level of profits, a number of hypotheses have been tested to evaluate the alternative theories of the firm. A summary of these hypotheses is introduced in this chapter. The hypotheses will be set out in detail during the fourth chapter of this thesis.

Hypothesis 1 tests the managerial theories of the firm, and is particularly relevant to Baumol's Sales Revenue Maximization model.

Hypothesis 1

H1: There will not be a relationship between firm size (Turnover) and profit maximization.

Baumol (1959, p 46) contends that large firms are less likely to profit maximize and more likely to aim to maximize their sales revenue:

> "Surely it is common experience that when one asks an executive, 'How's business?', he will answer that his sales have been increasing (or decreasing), and talk about profit only as an afterthought, if at all."

The managers of firms are more likely to aim for a maximum level of sales because sales are more closely linked to salaries than profits. Baumol also suggests that the level of a firm's sales is a normal indicator of the health of the firm and may influence its ability to raise finance.

The second hypothesis will help to further validate Baumol's work because he suggests that firms that operate in oligopolistic markets are less likely to profit maximize.

Hypothesis 2

H2: There is no relationship between a firm's decision to profit maximize and the concentration ratio of the industry in which the firm operates.

If the Sales Revenue theory is to be supported by this study then it should be possible to reject both H1 and H2. Large firms which operate in an oligopolistic market structure should be less likely to profit maximize than small firms or firms which operate under competition.

The third and fourth hypotheses test the idea forwarded in the managerial theories in general, and specifically by Williamson (1964) and Marris (1964) that where the management

of the firm is separated from the ownership of the firm, the managers will be free to aim for alternative, non-profit maximising objectives.

Hypothesis 3

H3: There is no significant relationship between profit maximization and ownership type.

Hypothesis 4

H4: PLCs are not less likely to profit maximize than non-PLCs.

Hypotheses three and four are the most relevant tests to consider when we attempt to review the managerial theories of the firm. Although the three managerial theories discussed are not identical they are based around the same basic premise. That is, when the management of a firm is undertaken by professional managers, and not owners, the primary objective of the firm (in the view of the managers) will not be a maximum level of profits. Therefore, we should find a significant relationship between the ownership type of a firm and the likelihood that the management of that firm will aim for a maximum level of profits.

The aim of the fifth hypothesis is to offer support for or to refute the ideas forwarded by Simon (1959) and Cyert and March (1963). These behavioural theories of the firm suggest that as firms are a collection of individuals and groups they will not aim to maximize any specific variable. Instead, in order to satisfy all the different groups within a firm, a number of variables will have to be "satisficed". And so the maximization of any one variable will not be possible.

Hypothesis 5

H5: There will be no relationship between firm size (employees) and profit maximization.

Further to the hypothesis above, we would also expect firms in general (if we are to accept the validity of the behavioural theories of the firm) to be more interested in a satisfactory performance and not a maximum level of any performance indicator. This idea will be tested using the responses to the postal questionnaire.

Hypothesis 6

H6: There will be no relationship between a firm's level of corporate governance and profit maximizing behaviour.

This hypothesis claims that there is a link between the level of corporate governance within a firm's management structure and the likelihood of a firm aiming to profit maximize. This original hypothesis attempts to link the traditional neoclassical theory of the firm with the

shareholder theory of corporate governance, where the shareholders, as the owners, should have the right to expect that the managers of a firm act in a manner to maximize the benefits to be returned to the shareholders for bearing the risk. It is assumed that this will be best achieved through the maximization of profits.

The idea of a profit maximization theory linked to the level of corporate governance is attractive as, to a certain extent, it reconciles the neoclassical theory of the firm and the managerial theories. It accepts that all firms do not profit maximize and the reason for this non-profit maximizing behaviour is the separation of ownership from control. Where this theoretical development differs from the managerial theories is in the latter's assumption that managers are motivated to, and (more importantly) able to, act opportunistically in their own interests. It may be true that managers of managerially-controlled firms will increase their own utility by following a number of non-profit maximizing objectives, as suggested by the managerial theories of the firm. What is not definite is that the owners of these firms will allow the managers to maximize their utility at the expense of the owners' utility. The extent to which the managers are allowed to act, with their own best interest in mind, is measured using the level of corporate governance as a proxy.

The shareholder approach to corporate governance is not the only approach to the idea of corporate governance. Others have offered stakeholder theories. The Stakeholder Model (Freeman, 1984; Evan and Freeman, 1988; Blair, 1995) suggests that firms should aim to maximize not only shareholders' wealth, but stakeholders' wealth as well. A stakeholder is any group or individual who can affect or be affected by the actions of the firm. This includes workers, the local community, shareholders, customers, suppliers etc.

This suggests another original and testable hypothesis, which is that stakeholder firms may not maximize profits, in any traditional sense, because they will be more interested in the wellbeing of all stakeholders and not just the shareholders. For example, wages and benefits given to the workforce may be higher than the level necessary to attract and retain employees.

Hypothesis 7

H7: Shareholder firms are more likely to profit maximize than stakeholder firms.

We would expect that firms that are classified as shareholder firms will be more likely to profit maximize than firms that are classified as stakeholder firms.

Through testing the hypotheses listed above, it should be possible to test the validity of profit maximization and the alternative theories of the firm. Furthermore, we should be

able to offer new insight into the objectives of the firm in the twenty-first century, and offer a more refined interpretation of the classical principal-agent problem within economic theory.

1.5 Thesis Outline

The rest of the thesis is structured as follows. The second chapter comprises a critical review of the relevant literature. The major contributions to the neoclassical theory of the firm are explained and evaluated from a theoretical and empirical viewpoint. The chapter continues with an evaluation of the managerial theories of the firm. Baumol's (1959), Williamson's (1964) and Marris's (1964) managerial theories of the firm are discussed and critiqued by combining a theoretical debate with a review of previously undertaken empirical studies. Finally, behavioural theories of the firm are introduced and evaluated. This detailed analysis results in the formation of a clear understanding of both the term profit maximization and theory of the firm. These definitions have then been carried forward and used throughout the rest of the thesis. A theoretical review has been continued in the third chapter, during which the theories that underpin the concept of corporate governance are discussed. These theories have then been linked to the idea of business objectives. Finally corporate governance and alternative theories of the firm are discussed. This theoretical discussion has resulted in the formation of a new testable hypothesis (set out in the fourth chapter) concerning business objectives.

The next section of the thesis looks at the research paradigm and the methods employed to undertake this study. Chapter Four outlines the major research paradigms and explains why this study has been undertaken following the ideas that inform the postpositivist paradigm of inquiry. Chapter Five outlines the exact methodsemployed to collect and analyse data and describes how the data are used to test the hypotheses developed from the previous review of the literature. The exact nature of qualitative and quantitative data collected is explained in detail, as is the use of a probit model to analyse this data. During this chapter we demonstrate that the methods employed are directly derived from the chosen research paradigm. The use of a postal questionnaire and semi-structured interviews is explained and fully justified in this chapter.

Results from the postal questionnaire are combined with industry- and firm-specific data gathered from the FAME database and are reported in the sixth chapter. The results from a number of probit estimations, run using the data recorded earlier in this chapter, are then

reported. Finally, the outcome of the semi-structured follow up-interviews is presented. This information forms the backbone for the analysis section of the thesis that it precedes.

The results of the various methods of data collection and statistical analysis are reported in the interpretation section of the thesis (Chapter Seven). The hypotheses developed from the literature review and theory chapter are tested and explained. The testing of these hypotheses will offer support for, or refute, the validity of the neoclassical theory of the firm, alternative theories of the firm and the newly developed corporate governance theory of firm behaviour. The results generated from the data collection and analysis offer broad support for profit maximization being the main objective of the firms surveyed. No statistically significant relationship was found between the likelihood of a firm not profit maximizing and the size of the firm measured by turnover or by number of employees, or any measure of the concentration level of the industry. The ownership status of a firm did not have an influence on the choice of business objective. The lack of a relationship between these variables and the main business objectives of the firm leads us to conclude that the results cannot offer support for any of the managerial or behavioural theories of the firm. However, a statistically significant relationship was found between the likelihood of a firm being a profit maximizer and the level of corporate governance with that firm's management structure. In other words, firms with a strong level of corporate governance are more likely to profit maximize than firms which suffer from a low level of corporate governance.

Finally, the limitations of this research project are acknowledged and some suggestions concerning the development of further research on this critical topic are proposed.

Chapter Eight offers a review of the conclusions of each of the previous chapters and ultimately conclusions concerning the theory of the firm and the alternative theories of firm behaviour are drawn.

1.6 Motivation for this Research Project

There is no doubt that the motivation for undertaking this research project was due to the current lack of agreement concerning the validity of the theory of the firm and the traditional alternative theories. However, motivation for the undertaking of this research project was not solely concerned with this gap in economic knowledge. Motivation also stems from the belief that the level of corporate governance is an important issue that should be of concern to regulators, shareholders and other stakeholders in joint stock companies.

From an academic viewpoint, it is hoped that the theoretical discussion undertaken during

this dissertation will offer some clarification concerning the meaning (or meanings) of the term profit maximization. It will be argued during this thesis that (at least part) of the continuing disagreement concerning the validity of the theory of the firm (profit maximization) stems from there being two different interpretations of the term. The case is forwarded that the term profit maximization should be understood as a business objective and not a pricing rule. That is to say that when we suggest that a firm is a "profit maximizer" we are not suggesting that the decision makers within that firm use marginal cost pricing but merely that they make decisions that they think will increase their profits. This interpretation has no consequence for the traditional models that are used to teach basic economics. We accept that these simple economic models explain what will happen when firms profit maximize and not how firms go about profit maximizing in the first instance. If we can offer support for the view that firms aim for a maximum amount of profit as their primary business objective, then we can be more confident that our simple models of the firm will predict the behaviour of the average firm.

Further to this, the study also offers a theoretical review of managerial and behavioural theories of the firm and their suitability as "alternative theories" to the traditional neoclassical approach. The theoretical discussion is combined with an overview of the previously undertaken research in this field. This review of the relevant literature is then combined with the primary data collected for this study and used to offer a fuller picture concerning the validity of the theory of the firm and alternative theories.

It is hoped that the current obsession with claiming that the average or representative firm in the UK is a large complex organisation will be, to some extent, negated. As a consequence of this we hope that it will be understood that the traditional neoclassical theory of the firm cannot be replaced by either managerial or behavioural theories because they are not representative of the average firm but have actually been developed to explain the behaviour of a small number of large firms.

There has already been an increase in awareness concerning corporate governance and the role that shareholders should have in determining how the firms that they own are operated. It is to be hoped that as the amount of academic research in this area increases, it will play a small part in a move towards a greater degree of transparency and accountability concerning the managers of large businesses and their role as agents, charged to maximize the value of the shareholders' investment. One of the main objectives of this study is to test for a link between the level of corporate governance and the likelihood of a firm aiming to maximize

profits. If we accept that maximizing profits in the long run will offer the best chance for shareholders to maximize the utility from their shareholding then this research may be of particular interest for shareholders, consumer groups and regulators. The data collected suggests that there is a positive relationship between the likelihood of a firm aiming to profit maximize and the level of corporate governance. This suggests that the regulators are correct in pushing for a high level of governance and that pushing for firms to have more non-executive directors etc may have a positive bearing on governance and therefore be in the interests of the shareholders.

When we consider the recent corporate failures such as Enron and WorldCom it becomes apparent that the concept of corporate governance should be an important consideration of all parties who own shares or who regulate the actions of these firms. Furthermore, when we consider the number of people in the UK who directly or indirectly (through investments in pension schemes etc) own shares then it can be argued that corporate governance is an issue that will affect the majority of UK citizens. Therefore it is hoped that this study will be of interest not only to economists but also to a wide range of stakeholders who own, regulate or study managerially-controlled firms.

Chapter 2

Literature Review

2.1 Introduction

The aim of this chapter is to review the literature that will be used as the theoretical basis for the rest of this thesis. Neoclassical, behavioural and managerial theories of the firm are evaluated from a theoretical and empirical perspective. The literature concerning the separation of ownership from control is discussed, this being the main concept underpinning the development of the managerial and behavioural theories. Finally, other theories of the firm are briefly reviewed.

This has allowed the author to identify a number of hypotheses which are investigated in the remainder of the study. Previous research conducted to test the validity of each theory is also discussed and the weaknesses in these previous studies are identified. Furthermore, methods for overcoming these limitations are formulated in the methodology and data collection sections of the thesis.

This chapter has been split into four main sections: profit maximization, managerial theories, behavioural theories, and other theories of the firm.

2.2 Profit Maximization

Economists have been interested in the objectives of firms, and individuals who control firms, for centuries. The original theory developed was one of profit maximization which has been attributed to Marshall (1890), although there were many distinguished economists who influenced Marshall's work (e.g. Smith, 1776; Ricardo, 1815; Torrens, 1821; Mill, 1848).

Indeed, before Marshall introduced the concept of profit maximization Jevons had already put forward the idea of utility maximization: "...to maximize pleasure is the problem of

economics" (Jevons, 1871; p 101).

Marshall moved the analysis from the maximization of an individual's utility to the maximization of the utility that an individual gains from operating a business. It is assumed that an individual will maximize their utility through the maximization of profits.

Furthermore the idea of optimal decision making or marginalism predates Marshall's work.

> "If Jevons introduced the idea of rationality as utility maximization it was Menger and the other Austrians who introduced the idea of economizing, or the best (optimal) use of resources in the satisfaction of need." (Udehn, 2003; p 145)

Marginal differentiation became the preferred method for measuring the point at which the maximum level of profit is attained and the use of this marginal analysis in economics can be traced back to Cournot (1838).

The assumption was made that firms, or owners of firms, would operate so that the marginal cost (MC) of production, i.e. the cost of the last unit of production, would equal the marginal revenue (MR), i.e. the revenue received from selling that last unit of production. Mathematically, this gives a maximum amount of profit, if profit is defined as total revenue minus total cost (over a given period of time). The focus of the analysis was not on the characteristics of individual firms. Instead Marshall focused on general characteristics of the average firm, thus developing the idea of the "representative firm". Important contributions have been made by: John Bates Clark, perfect competition (1899); Knight, perfect competition (1921); Chamberlain, monopolistic competition (1933); Robinson, monopolistic competition (1933) and Coase, transaction costs (1937). The central focus of all these theories was profit maximization, the idea that firms act like "black boxes" and are influenced by simple supply side variables (MC) and simple demand side variables (MR).

If we accept this neoclassical theory of the firm then the main objective for owners/managers of firms is profit maximization.

Debates about the theoretical and methodological validity and the realism of abstract theories (in the field of economics) can be traced back as far as the mid-18th century to the arguments between the classical and historical schools of economic thought. The Methodenstrreit of 1883-84 dealt with this issue and American institutionalism can be seen as an attack on abstract theories e.g. the theory of the firm). Modern theoretical debate

on profit maximization was based around the explicit marginalism that became the standard method of both teaching and researching economics in the early-to-mid-20th century (Machlup, 1967).

Marshall (and his wife) laid the foundations of the theory of the firm in "The Economics of Industry" (Marshall and Marshall, 1879). They contended that people engaged in business will produce more of a product or service if they think the selling price of the product or service will be higher than the cost of production and vice versa. With the equilibrium price being equal to the cost of production:

> "Every producer of a commodity calculates the price at which he will be able to sell it, and the Expenses of producing it. He thus determines whether to increase or diminish his production. If there is free competition, that is, if he is not acting in combination with other producers, he increases or diminishes his supply according as the price of the commodity seems likely to be greater or less than its Expenses of production. Thus he is led by his own interests to act in the same way as he would if his only object were to regulate the amount produced so that it could be sold off at a price equal to its Expense of production." (Marshall and Marshall, 1879; p 76)

This "law of supply" is termed the law of normal supply to differentiate it from the case of monopoly. Furthermore, under monopoly the profit maximizing approach is developed and made more explicit:

> "... he thus determines what will be the total net profits that he may make by offering it for each price; and then fixes his price so as to make these total net profits as large as possible." (Marshall and Marshall, 1878; p 181)

The above two quotes (along with other sections of the text) are the beginnings of the modern understanding of the theory of the firm. These ideas are developed in the "Principles of Economics" and stated in more exact language,[1] where Marshall also contends, "The *prima facie* interest of the monopolist is to get the maximum net revenue" (Marshall, 1890; p 457).

[1]This may be due to Marshall writing the book and not his wife. There is much debate about who wrote which sections of the "Economics of Industry", the suspicion being that his wife may have authored the book.

The above passages provide evidence that Marshall (1890) was offering profit maximization as a general theory of business objectives. Although he himself does not use marginal analysis to determine this maximum profit (net revenue), Marshall's work is still the beginning of what will become marginal analysis.

However, these quotes do not confirm that Marshall suggested the owners or managers of firms actually use exact numerical methods to achieve this maximum amount of profits. Indeed, in a number of passages of the Principles of Economics, Marshall (1890) makes it clear that firms do not use exact methods to gain a profit maximizing price or output. When discussing the use of economic methods within business decision making, he contends,

> "Judgement of this kind must always be inferior to those which an able business man forms, by the aid of instincts based on long experience with regard to his own business." (Marshall, 1890; p 470)

Marshall continues,

> "He who by practice and genius has acquired the power of attributing to each factor its right quantity, is already well on the way to fortune." (Marshall, 1890; p 478)

These statements do not add any credence to the view that Marshall thought that businessmen actually calculated the exact cost of production and equated this with the revenue from selling this production. Marshall offers further evidence to support the view that he fully understood that businessmen would not exhibit exactly the behaviour that he describes in the book:

> "The practical benefits of many of the abstract reasonings in which we have recently been engaged will not be fully apparent till we approach the end of this treatise." (Marshall, 1890; p 471)

It seems clear, as Machlup has suggested, that Marshall separates actual business practice from the positivistic abstract theorising that he undertakes (Machlup, 1946, 1947, 1967).

This view of Marshall's thinking is also offered in the first part of the book, where there is a discussion of the "methods of study":

> "Wide as are the interests of which the economist takes account when applying his doctrines to practice, the centre of his work is a body of systematic reasoning as to the quantities of measurable motives. For the purpose of this or that special illustration he may even neglect all other." (Marshall, 1890; p 79)

Although the beginnings of the theory of the firm can be found in Marshall's work, there can be little doubt that Marshall did not imply that the owners/managers of firms attempt to equate the marginal costs of production with marginal revenue gained from selling this unit of production. Rather, it is quite clear that Marshall accepts that businessmen use "rules of thumb" and their own knowledge of an industry to formulate prices. Furthermore, Marshall makes clear the distinction between "abstract reasoning" and actual business practice. The theory of the firm that Marshall proposes is one where owners of firms do attempt to maximize their net revenues (profits); however the methods by which they attempt to maximize their profits are not the exact methods explained in his book. These methods are for economists to use to predict behaviour and, conversely, businessmen will use their judgement and experience.

Chamberlain (1933) develops the theory of the firm to include "monopolistic" competition; Marshall had concentrated on monopoly and pure competition. Chamberlain frequently uses the term profit maximization and explains where it occurs:

> "The starting point in defining economic equilibrium under monopoly or competition or any combination of the two must be the assumption that every individual seeks, without qualification or delusion, to maximize his economic gains .....the maximizing of profits tends to lead to one result ..." (Chamberlain, 1933; p 20).

There is little doubt that anyone reading Chamberlain's work would assume that the sole aim of businessmen is to maximize their profits. It has a very different tone to Marshall's (1890) treatment of similar issues.

Marshall explains in detail what economists are trying to do by their "abstract reasoning". It is difficult, after reading his work, to form the opinion that he felt that real businessmen would attempt to equate marginal revenue with marginal costs, in order to profit maximize. However from reading Chamberlain's work with its more exact and precise language one could indeed have formed this opinion. There are two possible explanations for this. Firstly, Chamberlain may have misunderstood Marshall, and wrongly believed the exact

mathematical theorising of Cournot (1838), to be applicable to Marshall's work, without understanding that there is a difference between abstract theory and how people make decisions in the real world. He, therefore, may have thought that firms do work out, with the aid of diagrams and calculus, their profit maximizing output.

Much more likely is that he understood Marshall's (1890) position with regard to profit maximization and agreed with him. When writing an economic theory with the assumption that firms aim for a maximum amount of profit, it is difficult to outline a formal analysis by suggesting that firms aim for profit maximization without using exact tools of economics/mathematics to defend this point. Suggesting that they use experience, guess work and other immeasurable sources may result in work being criticised for not being robust. It must be remembered that at this time, economists were attempting to ape the natural sciences.

Whatever the truth really is has little relevance Marshall was not suggesting that firms use exact marginal methods to work out their profit maximizing price and output. If Chamberlain was suggesting this, he was incorrect. More likely he was not, but stuck to precise language for the sake of the clarity of his model.

Robinson also put forward the theory of monopolistic competition (Robinson, 1933), and marginal analysis lies at the heart of this analysis. When discussing profit maximization Robinson states her opinion thus:

> "The seller is assumed always to equate marginal revenue to marginal cost. He may be conceived to do this whether by estimating the demand price and the costs of various output, or by a process of trial and error." (Robinson, 1933; p 52)

Robinson clearly supports the central idea of profit maximization and the marginal approach for finding the level of output and price that results in profits being at a maximum level. Whether or not Robinson believes firms actually equate their marginal revenue and marginal cost curves in the real word is open to debate. In the introduction to this study Robinson suggests that the assumptions of economic theories are not necessarily meant to mirror real life.

> "It is an essay in the techniques of economic analysis, and can make only an indirect contribution to our knowledge of the actual world." (Robinson, 1933; p 1)

Robinson continues that the profit maximization assumption is central to the working of the theory of the firm, and contends that it cannot work without this assumption.

> "Now it is this assumption that makes the analysis of value possible. If individuals act in an erratic way only statistical methods will serve to discover the laws of economics, and if individuals act in a predictable way, but from a large number of complicated motives, the economist must resign his task to the psychologist." (Robinson, 1933; p 6)

A large number of economists have contributed to the theory of the firm. This study has reduced the bulk of the analysis to three representative authors' works. It is not meant to suggest that these three works were the originals or that these authors demonstrate more talent than others, only that these three authors, by influencing and being influenced by other economists, offer a summary of the work undertaken in this period. Nothing is to be gained here by examining other works in detail, as in this study we do not dispute the main points of the theory of the firm.

We accept that equating marginal revenue with marginal cost will give a businessman a maximum amount of profit. As for profit maximization as the goal of all firms, this assumption has been tested empirically in later parts of this thesis. The debate concerns the method for achieving profit maximization and the extent to which Marshall et al. claimed that the decision makers within a firm actually work out their marginal revenue and marginal costs.

Not only did Marshall (1890) not mention marginal revenue and marginal costs, he made it quite clear that there is a difference between an economic theory and the real world. Robinson (1933) followed on with this approach (Chamberlain's (1933) opinions were harder to interpret).

The argument forwarded from this review of the relevance of the theory of the firm is that the managers or owners of a firm will aim for profit maximization as an objective. However they will not work out their marginal costs and marginal revenue, as Hall and Hitch (1939) and Lester (1946) have claimed; merely they will take actions that they feel will (over some time period) increase their profits. They will not take actions that they think will reduce their profits. Their actions are more likely to be based on experience and rules of thumb than marginal analysis. Nevertheless, the aim is still to get a maximum amount of profit. If owners/managers of firms act to increase their profits, then the mathematical end point

of this attempt to increase profits would be where profits are maximized, hence the term profit maximization. It is this interpretation of profit maximization which we will attempt to verify and no other.

Lester (1946, 1947) argued against marginal analysis and profit maximization as a general theory of firm behaviour. Problems were identified with the "general scientific methodology". Lester also questioned the usefulness of abstract theorizing. Earlier empirical work produced by Hall and Hitch (1939) was used by Lester to support his theoretical arguments (he also undertook an empirical study). Hall and Hitch (1939) and Lester (1946) demonstrate a flawed understanding of the economist's position with regard to profit maximization and the marginalist debate. Their argument is based on the over-simplification of a business into two simple variables, i.e. marginal revenue and marginal costs.

The argument that other factors would have an influence on the decisions made about price, output, employment and all other supply side (MC) and demand side (MR) variables does not falsify the marginalist approach. Economists have always accepted that other factors may influence the actions of individuals who control firms, and there is no reason why all possible factors could not be included in a model of the firm. It is possible to construct a model of any firm and expand this to include the utility function of the owners (this would give you all the information on costs, profits and the satisfaction (utility) of the owner of the firm in question). However, a model of a firm, and not a theory of the firm, would have been constructed. That is to say, we would be able to use this detailed model to predict the behaviour of the firm in question but, this model of a particular firm would not be able to offer an insight into the behaviour of the average firm.

The marginalist approach is a simple abstraction of reality, and as long as profit maximization is a goal, ceteris paribus, for the majority of firms, then the theory is valid. Machlup writes,

> "The purpose of the analysis of the firm is not to explain all actions of each and every firm in existence; we are satisfied if we can explain certain strong tendencies in representative sectors of business." (Machlup, 1947; p 149)

As long as the average owner/manager of a firm is attempting to maximize profits then this is adequate support for profit maximization as a general rule of firm behaviour.

Economics is not a natural science, where laws can be proved or disproved in absolute terms; rather it is a social science. The best any social scientist can hope for is that they can predict

the average or normal behaviour of a large majority of people. Therefore, attacks on the theoretical underpinning of the marginalist approach are irrelevant.

There have been a number of studies that have attempted to falsify or validate the economic theories of firm behaviour, with differing degrees of success. The situation is currently ambiguous with no theories accepted or rejected, although profit maximization remains the predominant assumption in most modern economic analyses.

2.3 Profit Maximization (Quantitative Studies)

There have been a number of quantitative studies: Hall and Hitch (1939), Lester (1946), Skinner (1970), Shipley (1983), Jobber and Hooley (1987) and Hornby (1995), which have attempted to provide evidence that supports, or detracts from, the economic theories that have been developed to explain business behaviour.

The first study to refute profit maximization as a general rule of firm behaviour was undertaken by Hall and Hitch (1939). The authors surveyed 38 businessmen to determine what method they used to set prices and make their output decisions. Hall and Hitch found no support for the neoclassical theory of the firm; the majority of respondents did not use or understand terms such as marginal revenue, marginal cost, etc. Where the businessmen did understand these terms, they found them of little or no importance.

Hall and Hitch (1939) stand alone as the only researchers to attempt to falsify profit maximization under all circumstances. However a number of theories have been developed to replace profit maximization. They are generally concerned with ownership and control, the principal-agent problem, and not with profit maximization under all circumstances. That is to say that these theories do not suggest that the owners of firms do not aim for a maximum level of profits, merely that where there is a large degree of separation of ownership from control, it is unlikely that the desires of the owners will be completely followed by the managers of a firm. Therefore small owner-controlled firms may profit maximize to a far greater extent than large joint stock firms. This differs from Hall and Hitch's view that all owners of firms simply do not aim to maximize their profits.

The research by Hall and Hitch (1939) was carried out with owner-controlled firms and therefore there was no principal-agent relationship; their attack was on profit maximization as a general theory of firm behaviour.

This research was useful as a motivating factor for other economists to develop more complex

theories of the firm which could deal with the principal-agent problem. However, as a piece of research it was flawed.

The sample size of 38 made any aggregation of the results into a general rule problematic, as the results are likely to lack reliability. Furthermore, the sample includes 36 small manufacturing firms and, as a consequence, is unrepresentative of large sections of the economy. The sample was further biased as the selection of candidates for the survey was based on personal relationships between the authors and the businessmen questioned. There was no attempt to gather a sample that represented any notion of the average businessman in Oxford, England or the UK.

As a representative study Hall and Hitch's work has no real value, and they freely admit the weakness of their own work. The argument they advanced was that the evidence from their study (no matter how limited) was so overwhelming that it allowed them to reject profit maximization: "A large proportion of businesses make no attempt to equate marginal revenue and marginal cost in the sense in which economists have asserted that this is typical behaviour" (Hall and Hitch, 1939, p 32). This argument is flawed; firstly due to the lack of rigour in the original research, that limits the reliability of any conclusion; secondly, and more importantly, by the researchers' own lack of understanding of the concept of profit maximization. Businesses' failure to use and understand marginal analysis does not mean that they are not attempting to profit maximize, only that they do not understand how to achieve this aim. Hall and Hitch's paper demonstrated a flawed understanding of the economist's position regarding profit maximization. The profit maximizing firm is meant as a representative firm; it is an economic model of how firms might operate. Models are only representative simplifications and do not exist in reality. Setting marginal revenue equal to marginal cost is only the theoretical method for maximizing profits and it is used for economic analysis; owners of firms are not expected to follow this as a pricing strategy (Machlup, 1946, 1947, 1964).

> "The marginal analysis of the firm should not be understood to imply anything but subjective estimates, guesses and hunches ... Anticipations alone are the relevant variables in the marginal calculus of the firm." (Machlup, 1946; p 525)

The marginalist approach does not imply that business decision makers use or understand economics or economic terms, or that they look at costs and revenue in an objective manner, only that they consider the costs and revenue they expect to receive from extra work and

will undertake this work if it is perceived to add to their profits and will decline the offer of new work if perceived otherwise.

Therefore, the underlying principle, that the owners of firms would aim to make as much profit as they can, is not falsified by Hall and Hitch's work.

These problems have been addressed in this thesis. For this study a larger sample (310) was utilised and this sample has been taken from a larger population (2.8 million). This sample should be representative of the UK economy, as it is a random sample, which means that firms from all sectors of the economy had an equal chance of being part of the sample. These issues will be explored more fully in the fifth chapter (data collection and models) of the thesis.

The most fundamental weakness in Hall and Hitch's (1939) work lies in their lack of understanding of profit maximization and the survey questions they asked, because of this lack of understanding. We will ask managers and owners if they could (in their opinion) increase their current or future profits by changing the price charged for their goods or services. It is unrealistic to expect managers or owners of firms to use or understand economic terms, such as marginal revenue and marginal cost. There is little to be gained from explaining these terms as this study is interested in profit maximization as a business strategy not an actual pricing strategy. The results should indicate, ceteris paribus, if the managers are aiming to maximize profits, even if problems of bounded rationality make it an impossible goal. Bounded rationality refers to behaviour that is "intended rational but only limitedly so" (Simon, 1959; p 210).

Herein lies the important distinction. We are interested in what the owner/managers of firms are aiming to achieve, not what the outcome of their efforts is.

Lester (1946) surveyed a sample of 430 manufacturing firms to gain an understanding of why the owners of these firms increased or decreased the level of employment in their factories. He went on to link this to marginal analysis used for attaining the profit maximizing price and output of a firm. His findings supported Hall and Hitch's, that almost none of the respondents understood or used the terms marginal revenue or marginal costs (or elasticity of demand).

This survey suffered from the same lack of understanding of economic theory as the previous study by Hall and Hitch (1939). Furthermore, both studies failed to undertake any form of follow-up interviews and, as a consequence, the results lack validity. Machlup (1967, p 3) contends that there are "issues of the validity of surveys through mailed questionnaires

and of the proper interpretation of responses to various types of questions about managerial judgment."

A number of methods for overcoming the problems, identified above in the quote by Machlup, have been expounded in the subsequent chapters of this thesis (chapters Four and Five).

Skinner (1970) surveyed 179 firms and aimed to gather information on their pricing strategy. The survey also offers some evidence in terms of firms' objectives (profit maximizing or non-profit maximizing). Skinner interprets profit maximizing as a pricing tactic instead of a business strategy, the former identifying how firms decide the actual price of any good or service, whereas the latter interprets what the managers/owners of firms see as their overall objective (the concept of a business objective has been discussed in the third chapter of this thesis). The results offered more support for profit maximizing than did Hall and Hitch (1939). Fifty-two percent of respondents answered no to the following question: "Taking account of all relevant factors, including the reactions of your competitors, could you at present (if you wanted to) increase your profit by changing price?" Skinner himself was not convinced that this meant that 52% of firms were profit maximizers. If we define profit maximizing as MR=MC, he is right. The figures suggest that 52% of the firms surveyed thought that they were selling their goods at a price which maximized profits, i.e. they thought they were maximizing their profits. They were making decisions with bounded rationality not unbounded rationality. Thus, this would suggest that 52% of the firms surveyed put maximizing profits as their primary objective.

Economists understand and accept that decision makers are subjective rather than objective when making business decisions. That is to say that decision makers within a firm will make decisions that are based on their own opinion and feelings. They will make decisions that they think will maximize profits. They will not calculate the profit maximizing price and output. It is other authors who misinterpret the economists' position and suggest that economists imply that decision making by individuals is done in an objective manner.

Shipley (1983) received responses from 728 firms. When asked what their primary objective was, 47.7% of the respondents said profit maximization. Shipley suggested that claiming profit maximizing as a primary objective was not sufficient to categorize firms as actually being profit maximizers in the manner argued by economists. He found that only 15.5% of the 728 respondents could be classified as true profit maximizers, by his definition. That is, that profit maximizing is both "of overriding importance and a primary objective". He

offered no explanation concerning the difference between a "primary objective" and "of overriding importance and a primary objective".

The majority of researchers in this field appear to be trying to limit the percentage of respondents who claim profit maximizing as their objective. To what extent this is due to misunderstanding the ideas behind the original theory, or possibly some bias against the theory, is difficult to quantify.

Jobber and Hooley (1987) used a postal survey in a similar manner and gained a usable response of 1,775. They asked firms to identify their prime pricing objective and 40.2% of the respondents identified profit maximization as their prime pricing objective.

Hornby (1994) surveyed a sample of 200 Scottish companies and gained a usable response rate of 38.5% (77 companies). The survey was based on a postal questionnaire. When questioned on what "objective is of overriding importance", 28.6% of firms stated profit maximizing. When asked if profit maximizing was both "of overriding importance and a primary objective", 24.7% of firms answered in the affirmative. Answering yes to both questions is the definition that was developed by Shipley of a true profit maximizer.

The data supports the idea of profit maximizing for a large number of the firms surveyed. If we take the figures for the firms that claim to be profit maximizers, before any interpretation of their meaning by the researchers, some 42.5% of the respondents of the surveys listed (n=2759) claim to be profit maximizers. If we look at the figures after various re-interpretations by the researchers in question, the figure falls to 33.9%; but this still represents a large percentage and offers support for the theory that profit maximizing is the prime objective for a large number of firms.

All postal surveys involve problems of questionnaire design and interpretation and provide little or no scope to validate the responses gained. The authors of the aforementioned studies, with the exception of Hall and Hitch (1939) and Lester (1947), attempted to limit these problems. The problems in question can be limited by using one or more than one of the following techniques: pilot studies, phone interviews, comparison with other studies etc.

To limit the lack of validity identified in the previous research, this author has conducted a number of semi-structured interviews. A pilot study was carried out to test the questionnaire. The pilot study generated 40 (20%) returns from a sample of 200 (Chapter Five). The main questionnaire was then changed to take into account the findings of the pilot study. Thus, the interviews give an insight into the likely interpretation of the questions

by a sample of the respondents. A more detailed explanation of why interviews were used to increase the validity of this research project is contained in the methodology chapter (Chapter Four).

As society changed in the 20th century, business changed as well, and a move towards large firms and enterprises became more noticeable. This change resulted in a search for new theories of the firm that could be used to explain the behaviour of large stakeholder firms. If a firm has a large number of owners, how are decisions on output and prices made? Who decides if the business objective should be one of profit maximization or another objective (e.g. sales maximization)? Throughout the first half of the twentieth century economists proposed new theories to take into account the changing ownership and structures of modern firms, e.g. managerial and behavioural theories of firm objectives.

2.4 The Separation of Ownership from Control

There have been a number of managerial theories of the firm advanced to explain the nature of business objectives: the revenue maximization hypothesis (Baumol, 1959), the managerial discretion model (Williamson, 1964) and the growth maximization model (Marris, 1964). These theories were developed from the idea of separation of ownership from control, first suggested by Berle and Means (1932).

It became commonplace in the modern world for companies to be owned by a large number of individuals (and institutional) shareholders. The Joint Stock Company was (and still is) the normal method for business ownership of large-scale firms. This type of ownership introduces a problem that is not found in owner-managed firms, namely separation of ownership from control or principals from agents. Under this type of business structure the owners (shareholders) are not the decision makers. Instead, professional managers (agents) are employed to make business decisions on behalf of the shareholders, who as a collective body have the right to replace the management but are not otherwise involved in the management of the firm. Why should the managers of the firm have the same objectives as the owners of the firm? Why would a manager put profits before other objectives? What might these other objectives be?

Managerial theories of the firm stem from the belief that the firm in neoclassical economics no longer offered a good representation of the average firm. The firm in neoclassical economics was assumed to be owner-controlled the consequence of this being that the owner's aims and objectives were assumed to be the same as the firm's aims and objectives. However,

the managerial theorists felt that this owner-controlled firm was no longer representative of the average firm.

Berle and Means (1932) offered evidence to support this thesis. However, Veblen (1923) was investigating this issue before the publication of Berle and Means' famous treatment. They found that 88 out of 200 large US non-financial corporations were managerially controlled (the data was collected in 1929). They classified a shareholding of between 20% and 50% held by an individual or group as effective control. An ownership threshold was set at 5%, meaning if no one person owned more than 5% of the shares of the firm, then the firm was effectively managerially-controlled. No one individual owned more than 5% of the 88 firms identified as being managerially controlled by Berle and Means.

This study was replicated by Larner (1966). Larner set a share ownership threshold of 10% of shares being in the ownership of a single individual. Of the top 200 US firms, 84 percent could, by this measure, be classified as managerially-controlled.

Using a sample of UK firms, Sargent (1961) found that 30 out of 98 large UK firms could be classified as being owner-controlled.[2] In a sample of smaller firms, Sargent found only 88 out of 268 firms were owner-controlled.

Both the validity of the results gained from these studies and the methodology used to design these studies have been questioned over the past thirty years. Prais (1976) and Nyman and Sibertson (1978) both raise possible problems with Berle and Means' (1932) approach. The main plank of the argument is that the absence of a dominant shareholder or group of shareholders does not in itself prove that managers of these firms are left to run the firm as they please. There are also problems with the treatment of interlocking directorships and firms that are owned by other firms. In a more recent survey Leech and Leathy (1991) found that 91% of 470 large UK industrial firms were owner-controlled, using a 5% threshold. This figure drops to 34% when a 20% threshold is employed. Earlier research conducted by Cosh and Hughes (1987) produced similar results. Cosh and Hughes contended that their results were "...not very comforting for the managerialist position."

Although the results gained from Berle and Means' (1932) study may have been questioned recently, the original premise would still appear to have some validity. However, the concept of only considering the dispersion of shares when considering how a firm is run may have been flawed. It may be more appropriate to consider the level of corporate governance within the firm. This may offer a more accurate picture of the management structure of

[2]The methodology of Sergents' study is similar to that of Berle and Means with only nominal differences.

the firm and the extent to which the owners of the firm can influence the management of the firm.

The premise of a separation of ownership from control in large firms would still appear to have some degree of validity. However, the level of managerial discretion may not be as high as was previously assumed to be the case.

This does not alter the fact that most firms in the UK are small firms. Over 94% of firms within the UK employ nine or fewer employees. Only 0.1 % of firms within the UK employ five hundred or more employees (table 7.1). Although a small number of employees does not in itself rule out a separation of ownership from control, it does suggest that the idea of the typical firm in the UK being a large firm with a complex managerial and ownership structure is not the case. Some 67% of all firms in the UK employ no staff and are presumably managed, owned and controlled by the same person (table 7.1). In fact, the neoclassical idea of small, owner-controlled firms is more likely to be representative of most UK firms than the large complex firms that managerial and behavioural theorists would suggest. It can be safely assumed therefore that managerial and behavioural theories of the firm can only possibly apply to a very small percentage of firms.

2.5 Managerial Theories of Firm Behaviour

Baumol (1959) developed the "Revenue Maximization Hypothesis". This theory stated that after a minimum amount of profits have been reached firms that operate in an oligopolistic market will aim for sales revenue maximization and not profit maximization. This means that the firm will produce beyond the profit maximum level of output. Baumol is referring to "big businesses" that operate in oligopolistic market structures.

Baumol's main issue is not with maximizing behaviour, as he understands the methodology behind this and accepts that rules of thumb and not marginal analysis will be used to influence decision making.

> "Management's difficulty is that it must retain some measure of control over the operations of the firm without, at the same time, tying itself up in operational detail. This problem is solved by the frequent use of rules of thumb..." (Baumol, 1959; p 30).

Thus, he feels that firms are more likely to aim for a maximum amount of sales revenue

and not profit. He himself admitted that he had no real proof to underpin this idea. The assumption is based on his own experience when working within firms.

Baumol's (1959) position is that sales are more important to the managers of a firm as it is the level of sales revenue that will determine their salaries, performance and the firm's ability to raise finance in the capital markets.

There are no complex computations to review when we consider Baumol's model. He merely states, based on personal experience, that firms will aim for a maximum amount of sales once a minimum amount of profit has been achieved. This will result in a firm producing beyond the traditional profit maximising level of output.

Conversely, Alchian (1965) argued against the idea that firms would ignore all objectives in order to maximize sales (except the profit constraint).

In addition, Baumol contends that these large oligopolistic firms are likely to spend more and differently, not less, on advertising than other firms. The reason for this is apparent to increase sales in an oligopolistic market, an increase in advertising spending will often be necessary.

This model can be critiqued on a number of grounds. Firstly, the revenue maximization hypothesis is only concerned with a small number of firms. These are large limited firms that operate in oligopolistic markets. Baumol (1959; p 3) contends, "In my view a useful model will usually be appropriate only in particular circumstances and, even then, only for the analysis of particular problems."

The most apparent weakness of the model is that it does not address the period of time over which sales are to be maximized. It is possible that the managers of the firms in question may have wanted to maximize their short-run sales, to gain market share in order to maximize their long-run profits. This behaviour is not consistent with the model in question as Baumol stated that sales were the ultimate objective.

The managers were not maximizing sales because of some other benefits that are linked to increased sales; a maximum level of sales itself was the aim. If managers are interested in sales maximization it is likely to be because of the benefits that they gain from increased sales (power, salary, and prestige). If this is the case, as it is in the model developed by Williamson (1964), then maximizing sales is not the ultimate objective, the objective is to gain salary, power etc. From the manager's point of view, sales maximizing is then a means of achieving his objectives and not an objective in its own right.

Peston (1959) suggested that Baumol's model may be correct under specific circumstances. That is to say that if a firm is uncertain about its revenue function it may choose to produce too much and gain from economies of scale.

The validity of Baumol's revenue maximization hypothesis has been tested by considering if large firms are more likely to aim for sales at the expense of profits (see chapters Five, Six and Seven). Furthermore, we would expect, according to Baumol, that these large firms are likely to have a minimum profit constraint.

Williamson (1964) offers three different versions of his Managerial Discretion Model. Starting from the classical perspective of profit maximization he moves away from the theory of the firm by maximizing a more general utility function than that of profit maximization.

Williamson considers that firms which exhibit a high degree of separation of ownership from control will be interested in more than just profits. He builds a model where there is a trade off between the firm manager's desire for profits and levels of staff. He builds a second model where there is a trade off between a manager's satisfaction from profit and from emoluments (perks and discretionary business expenditure). Finally, he combines these two models in a third model where there is a trade off between profits and both emoluments and staff expenditure. The managers are constrained by a minimum profit constraint and assuming they meet this constraint they are free to move away from seeking a maximum amount of profit.

The movement from profit maximization can occur in two different ways. Managers can increase their spending on emoluments and, therefore, post lower profits in their financial accounts. This in itself is not exclusive from, and does not rule out, profit maximization. The managers of firms would still equate marginal revenue with marginal costs and attain a maximum level of profits, but these profits would then be spent on discretionary expenditure. The managers of a firm may still aim for a maximum amount of profits. However, a proportion of these profits would be spent on various emoluments and not be available to the shareholder as profits.

The second movement away from profit maximization is more extreme (in that it actually is a movement from profit maximization and not a redistribution of profits). This movement refers to the trade off between profits and staff levels. Williamson (1964) contends that firms, which are not subject to a high degree of competition, will prefer more staff to more profits, after a profit constraint is satisfied. This has the implication that these firms will produce beyond the profit maximizing level of output.

Here we are not concerned with any weaknesses (if any exist)in Williamson's detailed mathematical analysis. As previously stated our interest lies in the objectives of managers or owners of businesses. The first movement from profit maximization (extra spending on emoluments) is not really a movement from profit maximization, but relates only to who gets the profits, and not the level of profits. It would be appropriate therefore to concentrate on the second, and genuine, movement from profit maximization.

The hypothesis, that a managerially controlled firm will not aim for a maximum amount of profits, will be tested empirically later on in this thesis. In terms of this specific theory it will be necessary to look at the degree of competition that these managerially controlled firms face and the degree of corporate governance that the managers are subject to. Williamson is specific about the type of firm that his model refers to: "Managerial discretion models of the business firm are intended to apply to firms where competitive conditions are not typically severe and where the management may therefore enjoy significant discretion in developing its strategy." (Williamson, 1964; p 39)

According to Williamson's model there should be a link between non-profit maximizing behaviour being exhibited by the managers of managerially controlled firms and the degree of competition they face in their particular industry. There should also be a link between profit maximization and the ownership structure of the firm, in that firms that have a high degree of separation of ownership from control in their ownership structures should be less inclined to profit maximize than firms that do not have a high level of separation of ownership from control.

These hypotheses have been tested in following chapters of the report, although there is one point that is worth discussing here. Marshall (1890), in what has now become the theory of the firm, was attempting to explain the behaviour of all firms. Williamson is limiting his theory to firms where there is a high degree of separation of ownership from control. He is not specific as to what degree this separation has to be, but even at its weakest he is excluding around 90% of the firms in the UK. This figure is further limited by the assertion that the firms must not face strong competition (or they will tend toward profit maximizing behaviour). Once again there are no details concerning the exact definition of "not typically severe competition", but it must again limit the amount of firms that can be included in this model.

The managerial discretion model can at most offer an insight into the behaviour of a very small percentage of firms (if it is correct) and cannot claim to be a general theory of the

firm.

Marris (1964) developed the "Theory of Managerial Capitalism". He attempts to explain the actions of managers of joint stock firms and suggests why their objectives will be different from the traditional economic "entrepreneurs".

Managers were assumed to (be trying to) maximize their utility function $U = U(\dot{C}, v)$, where $\dot{C}$ and v represent, respectively, the satisfactions associated with increasing levels of power, prestige and salary and the security from take-over, plus stock market approval. As the utility that managers derive from increasing levels of power, prestige and salary cannot be directly observed, Marris used the rate of growth of gross capital ($\dot{C}$) as a proxy for the unobservable utilities. The appropriateness of using the growth rate of gross capital (and its exact definition) to measure managerial utility from salary, power and prestige is difficult to measure.

More importantly, ambiguity of the definition of v represents the most apparent limitation of this model. It is difficult to test this theory mathematically, because one of the two main variables has not been clearly identified.

Marris gained motivation for his theory from his disregard for profit maximization and price theory in general. He contends that profit maximization is only a necessity due to the fact that neoclassical theory of price and production defines the firm as a "black box" that transforms outputs into inputs and has no other function.

Marris (1964) correctly suggests that managers of joint stock companies are sentient beings that have their own ideas and aims. Therefore, it is better to try to model these aims with the use of utility functions.

> "In orthodox economic theory, the firm was either no more than an abstraction hypothesised for a particular role in the theories of price formation and resource allocation, or, where recognised as a living institution, the form assumed as essentially traditional." (Marris, 1964; p 121)

A number of conditions have to be met for Marris' viewpoint to hold. Firstly, the firms in question have to be complex public limited firms i.e. they must have a stock market listing) for this trade off between value and growth to be relevant. Otherwise a low (stock market) value will not result in the managers being sacked by the shareholders. These PLCs must also suffer from a low level of corporate governance. This low level of corporate governance

means that as long as the managers obtain a minimum constraint (valuation) they can then focus on their own objectives e.g. growth.

As has been previously noted, the majority of firms in the UK, EU or the rest of the world are not PLCs but owner-controlled firms or partnerships that do not have a stock market listing. This itself rules out managerial capitalism as an "alternative theory of the firm", as clearly it cannot explain the actions of the typical firm.

The problem with the authors of managerial theories of the firm is their attempt to model the actions of a small percentage of firms (less than 10%) and then use this as a comparison for their misunderstood notions of profit maximization, that itself is attempting to explain the actions of the average firm.

It is also not correct to assume that all PLCs suffer from a low level of corporate governance. Indeed in recent times, with the publication of the Cadbury report (1992), it can be claimed that the level of corporate governance is increasing.

The methodology of this theory also causes concern. This positivistic approach, where managers attempt to maximize their own utility function, as opposed to the utility of the shareholders, is seriously problematic.

Marris (1964) criticises the "orthodox economic theory" for treating managers as a function with no thoughts or inputs. However, this viewpoint is confused. If it were true, then surely Marris is also making the same mistake. If managers of firms are complex individuals how can we measure their actions with simple utility functions and come up with a general theory?

Indeed, the three managerial theories of the firm have been developed using the same basic assumptions as the neoclassical theory of the firm. That is, they assume decision makers are rational, and that they demonstrate optimizing behaviour. The difference between the two sets of theories concerns who demonstrates this maximizing behaviour. Neoclassical models assume that the owners of businesses attempt to maximize their own utility (this is achieved through maximizing profits), whereas the managerial theories assume that the managers of businesses attempt to maximize their own utility.

Therefore, any criticisms that are aimed at the exact interpretation of the neoclassical theory of the firm must also apply to the managerial theories. Are decision makers rational, do they have perfect information, do they demonstrate optimizing behaviour?

It would seem to be better to use economic theory as an abstraction of reality that can offer

some limited insight into economic problems and issues, rather than attempt to actually model human behaviour in a few pages of basic mathematics.

2.6 Managerial Theories of the Firm (Quantitative Studies)

Hornby (1994) tested a number of hypotheses, with the aim of finding support for managerial theories of the firm. The first hypothesis tested was "There will be a negative relationship between the incidence of profit maximization and size." (Hornby, 1994; p 20) This is because as firms increase in size it is expected that there will be an increasing division between ownership and control, therefore larger firms are more likely to be controlled by managers and these managers are unlikely to aim for a maximum level of profit (according to the managerial theories).

Hornby found no support for this hypothesis. The second hypothesis to be tested directly compared owner-controlled firms to managerially controlled firms. Again there was no statistically significant relationship between the ownership of the firm and the business objectives followed.

A final hypothesis was constructed to gain insight into the likelihood of firms operating with a minimum profit constraint. Baumol's (1959) model specifically claims that managerially-controlled firms will operate with a minimum profit constraint, and it was implicit in most other "alternative theories of firm behaviour". Hornby (1994) found that owner-controlled firms were significantly more likely to have a minimum profit constraint than managerially-controlled firms. The managerial theories of the firm predict the exact opposite relationship to the one found by Hornby. He found no support for any managerial theory of firm behaviour.

Shipley (1983) cannot offer any support for managerial theories. He finds that larger firms, as measured by the number of employees, are more likely to profit maximize and less likely to "profit satisfice" than smaller firms. These results, like Hornby's, also represent the opposite of the prediction made by managerial theories of the firm.

Jobber and Hooley's (1987) results differ from Hornby's. They found a statistically significant relationship between firm size and profit maximization, with large firms less likely to profit maximize than small- or medium-sized firms. This offers some support for the managerial theories of the firm. Although Jobber and Hooley are looking at firm size and not ownership, there is no statement of the proportion of "large" firms that were managerially controlled. Therefore it cannot be concluded that the non-profit maximizing behaviour

observed in these large firms was a result of a high degree of separation of ownership from control.

The evidence from the data is marginal, with 39.2% of large firms claiming to profit maximize, while 45.3% of small firms claim to profit maximize.

There has been little evidence in support of managerial theories of the firm. Hornby's study, which offered the most evidence against managerial theories, was the only one that explicitly looked at the difference between owner-controlled and managerially controlled firms. The other studies look at size, measured by turnover (Jobber and Holly) and number of employees (Shipley). This suggests that Hornby's findings are likely to be the most valid. However, Hornby's study has its own limitations, most apparently the small size of the sample (77) and study population (200).

Predicting the behaviour of firms has a long tradition in economics, originating with Marshall (1890). Hall and Hitch's (1939) famous critique of the standard economic theory, developed by Marshall, resulted in the search for new theories that could explain the behaviour of large joint stock companies. The models, developed by Baumol (1959), Marris (1964) and Williamson (1964), were developed around the assumption that managers of firms would have a different, and quantifiable, set of objectives from those of the owners of a firm. The results of survey-based research have been mixed, with more evidence against the validity of these models than in support of the models. There is, evidently, a need for further research in this field.

2.7 Behavioural Theories of the Firm

Behavioural theories of the firm were developed by various authors at the start of the second half of the last century. Simon (1945, 1959) developed a model in which firms consist of a number of decision makers, many of whom have different objectives. Individuals within an organisation may be interested in profits, sales, market share, inventory and production. Organisations are involved in resolution of conflicts (due to different goals), uncertainty avoidance, problematic search and organisational learning. Cyert and March (1963) developed a similar model based on the interaction of individual managers within an organisation. The outcome of these models was that firms would aim for a satisfactory level of profits and pursue other objectives at the same time. This behaviour was termed "satisficing" by Simon (1959).

These models all assumed that businesses were a complex combination of individuals with

different aims and objectives. Cyert and March contend:

> "...the 'firm' of the theory of the firm has few of the characteristics we have come to identify with actual business firms. It has no complex organization, no problems of control, no standard operating procedures, no budget, no controller, no aspiring 'middle management'. " (Cyert and March, 1963; p 8)

The above quote highlights some of the key problems with the behavioural theories of the firm in general and with Cyert and March's work in particular. Firstly, there is a clear difference between the definition of a "firm" that is being employed by Cyert and March and that of normal English usage or that used by the legal profession. Clearly, Cyert and March (1963) do not consider a sole trader to be a firm; likewise a limited firm with two shareholders who are also the workforce of the firm would not appear to fit in with the idea of a firm as described by Cyert and March.

In fact, the above authors do not define exactly what they do mean by a "firm". They suggest that it must have some of the characteristics listed above, but it is quite apparent that what the authors are trying to explain is the behaviour of individuals or groups within large-scale organisations.

This is an interesting area of research; however it can hardly be called a "Behavioral Theory of the Firm" if it only applies to a very small percentage of firms. As has been previously pointed out in this study, most firms in the UK are sole traders and 94% of all firms have nine or fewer individuals involved with the firm (see table 7.1). It is difficult to understand why these small firms would have a complex organisational structure.

The concept of profit maximization and the theory of the firm were both developed to deal with the actions of all business decision makers, regardless of the size of the firm. It is problematic (at best) to try to compare this overriding theory of the firm with one that is only applicable to a small number of firms in the UK today.

A second problem with the quote introduced above is the idea that the decision making process within a large organisation is complex. Large firms are run by a small number of people or one (Chief Executive) whose job is to force their aims and objectives on the firm as a whole. It is difficult to assess the extent to which these "complex organisational structures" are actually relevant when we discuss business decision making. If we agree with the portrayal of the business world that is offered to us by the behavioural theorists, then it becomes difficult to see how *any* decisions or actions are taken within a large firm.

The models that have been developed are not general models of firm behaviour, instead they are models of business decision making in complex organisations.

Machlup points out that most important decisions in terms of profit maximization are not that complex. Therefore, there is no need to consider the complexities of the firm's hierarchy or how the information flows through the hierarchical structure.

> "Why should it take special theories of bureaucracy to explain how the news of a wage increase "flows" through various hierarchical levels up or down or across? Yet this, and this alone, is the information that is essentially involved in the theory of prices and allocation, since it is the adjustment to such changes in conditions for which the postulate of maximizing behaviour is employed." (Machlup, 1947; p 152)

The position forwarded by the behavioural theorists that firms are complex organisations made of a large number of individuals may not be true for the average UK firm. Nevertheless, if we do consider the firms that are correctly represented by this view of the world then weaknesses with this approach are still apparent.

> "Perhaps the simplest attack on profits as a motive is also the most destructive. We can argue that entrepreneurs, like anyone else, have a host of personal motives. Profits is one, perhaps, but they are also interested in sex, food and saving souls." (Cyert and March, 1963; p 9)

No sensible person would claim that the theory of profit maximization suggests that the profit motive is an overriding motive that determines the firm owner's actions at all times under all circumstances. All human beings consistently have a number of competing, and often conflicting, goals. This is true both personally and professionally. But surely one of these motives is the strongest at any given time; otherwise how do we function?

Decisions have to be made, and it is true that in larger organisations the decisions may be made by a majority vote and that each individual may be influenced by various pressure groups. However, is it still not likely that in a large number of cases the people being paid to make a decision are concentrating on the organisation and not their own personal goals? Is it still not likely that decisions concerning costs and revenue are taken in order to minimize long run costs or maximize long run revenue?

Simon contends:

> "In actual organizational practice, no one attempts to find an optimal solution for the whole problem. Instead, various particular decisions, or groups of decisions, within the whole complex are made by specialized members or units of the organization. In making these particular decisions, the specialized units do not solve the whole problem but find a satisfactory solution for one or more subproblems ..." (Simon, 1945; p 272)

It is no doubt true that many different parts of a large organisation will concentrate on different tasks. However, if the decision makers within a firm tell the production unit to minimize costs and charge the sales and marketing function with maximizing sales (constrained by the need for MR to exceed MC) then they will be moving towards a maximum level of profits.

However complex an organisation is there is a decision making unit, whereby an individual or small group of individuals set out their goals and then attempt to get the rest of the organisation to help them achieve these goals. It is not possible to monitor and control every action of your employees, but it is not impossible to set wide targets for costs, sales and profits and expect that, at the least, these performance measures would move in the right direction.

At its simplest the theory of the firm is valid if the senior managers (or a majority of them) want to increase profits as their primary objective. They will make decisions, and provide incentives for others, to ensure that this outcome is achieved. If a business is constantly attempting to increase its profits then the end point will be a maximum level of profits. Therefore this behaviour is consistent with maximizing profits in the long run.

We do not suggest that all large firms do attempt to maximize profits, but to suggest that no large firms attempt to profit maximize due to there being a large number of workers, decision makers etc is to miss the point. How many people are actually involved in important decision making within large organisations? We are not interested in the outcome of the decisions made but in the objectives of the decision makers. If decision makers aim to maximize their profits, even knowing they will almost certainly fail, we can still predict their behaviour with a degree of certainty.

Behavioural theories also attack the concept of profit maximization as a misrepresentation of how decisions are made; they suggest that firms are more likely to use rules of thumb than marginal calculus, the idea being that quick action based on a simple set of rules may enable the firm to get ahead of its rivals (Winter 1964).

Of course, as was explained in the opening section of this review, the use of rules of thumb (and other less formal decision making techniques) is not inconsistent with the idea of profit maximization. Economists are often accused of re-writing history when we suggest that the theory of the firm does not involve the use of exact mathematical methods. But, as we demonstrated at the beginning of this study, Marshall (1890) himself suggested that firms are more likely to assign costs and revenue by "practice" or "genius" *i.e.* rules of thumb.

The hypothesis being tested is that, however decisions are made within firms, the overriding aim of the decision makers (on average) is to increase profits.

Although the behavioural approach is arguably the more interesting of the two main alternative approaches to the theory of the firm, it is not actually an alternative approach at all. Rather, the two groups of theories come from different methodological and theoretical traditions and are proposing different questions and therefore are seeking different answers. The theory of the firm is an abstract simplification of reality intended to be applicable to the average firm and to be used for predictive purposes. The behavioural approach is an attempt to understand real life decision making within actual firms. It is quite apparent that both tasks undertaken by these theories are ambitious ones.

> "All firms do not behave in the same way in similar circumstances and a theory which helps to explain why they do not is perhaps to be preferred to one which asserts that they should." (Loasby, 1967; p 167)

The above quote demonstrates both the strength of the behavioural approach and why it cannot replace the neoclassical approach as a general theory of firm behaviour.

We have demonstrated in the previous section that the managerial theories of the firm have all been developed using the traditional neoclassical framework. The difference between the neoclassical theory and that offered by the managerial theories is merely concerned with who is attempting to maximize their own utility, owners or managers. This common approach has not been continued by the behavioural theorists. Indeed the behavioural theories of the firm have been developed from a completely different theoretical tradition. The behavioural theorists were influenced by psychology and management science, where there is an attempt to study the actual decisions that human beings are likely to have to consider. (Indeed, of the three authors commonly credited with developing the behavioural theory, only Cyert is an economist. This may explain why the theories have developed in a more interdisciplinary nature.) This indicative approach attempts to understand what decisions are to be made

in the real world, and to study how these decisions are made in the real world. Therefore, optimal decision making is replaced with "satisficing". Perfect knowledge is replaced with imperfect knowledge and, therefore, decisions are rational but constrained. That is, the decision makers demonstrate a "bounded rationality" (Earl, 1995).

We can use the theory of the firm for its stated purpose (economic models) assuming we accept its limitations. However, it is not entirely clear that this is the case for the behavioural theories. They can not tell us how a firm or the individuals within a firm will react to any specific issues or exactly how any decision is actually made. Rather their attempts to explain the decision making process are vague and difficult to quantify.

Therefore, the idea identified in the previous quote, that all firms are different, demonstrates both the strengths and the weaknesses of the behavioural approach. By attempting to be more realistic than the neoclassical approach, the behavioural theory becomes firm specific. That is to say its strength lies in studying an actual large organization. Its weakness lies in the fact that it cannot explain the actions of the average firm.

This of course is linked back to the different approaches to economics (Austrian *versus* Neoclassical). As these approaches are aimed at understanding different issues, it is wrong to claim that one approach is more correct than the other. It is also wrong for behavioural theorists to criticise the theory of the firm for doing what is was set up to do. Rather, we should accept that the neoclassical theory of the firm is concerned with the prediction of the behaviour of an average firm. Behavioural theorists on the other hand are interested in explaining how decisions are made (and not which decisions are made) within large complex organisations.

Recently many behavioural economists have developed models that question the ability of managers to make rational decisions. These models suggest that managers cannot be expected to concentrate on sales or costs etc, and that they are more likely to be interested in their image and other personal attributes (Cohen et al., 1972; Staw, 1980 and 1981; Bryman, 1984; Kanter, 1991).

There is little point in criticising the Austrian school's approach to economics on the grounds that it can not offer predictions of the behaviour of the average firm. Likewise it is pointless to criticise the Neoclassical approach for not considering how decisions are actually made within firms. Both approaches have been developed for these different purposes. This review is not offering a critique on the behavioural theories as a method of explaining decision making. Rather, we suggest that explaining how decisions are made in large-scale

organisations is not the same as explaining the main objectives of business decision makers. And as a consequence the behavioural theories should not be offered as an alternative to profit maximization. Instead we should think of them as complementary theories that can be used to explain different issues from those that neoclassical economics is traditionally concerned with.

2.8 Behavioural Theories of the Firm (Quantitative Studies)

Hornby (1994) found that 51.9% of firms could be classified as "satisficers" by his definition. That is, "once an objective or target had been reached there was no impetus to improve on this." Shipley (1983) found that 52.3% of firms could be similarly classified. What if this target or objective was in fact profit maximizing? The results suggest that the firms were not consequently seeking to improve on their current performance, but they do not tell us what their current performance is. There is also no mention of time period. Were they satisficing over a period of one year or forever? It is entirely possible that new targets are set every year, and once the yearly target has been achieved, there is no impetus to improve on this performance. That is until the next year when a new target is set. Clearly, this is not necessarily inconsistent with profit maximization.

The behavioural theories have claimed that this "satisficing" action was due to individuals within the model having different objectives. The results discussed above do not offer any insight into this question and as a consequence do not validate the theory.

2.9 Other Empirical Research

A number of econometric studies have been undertaken to ascertain if there is a statistically significant relationship between managers' salaries and the growth of firms. The assumption is that if managerial salaries are linked to firm growth and not profits, this adds support for managerial theories of the firm.

If there is a link between firms' growth and managers' salaries this does not prove that managers put size before profits, only that they get rewarded more for doing so. Did the managers in question have access to the relevant information to understand that their salary was linked more to sales than profits? Sales and profits are often linked; as the firm grows so might its profits. The studies do not adequately deal with this multicollinearity, i.e. we can not ascertain the difference between the cause and the effect.

These studies tend to look at the CEO's (Chief Executive Officer) salary, although it may be the board of directors of a firm that determines the overall corporate strategy of the firm. But there is no suggestion that their salaries are linked to sales not profits.

A number of these studies have found a negative link between CEO's remuneration and the growth of the firm (Ciscel and Carrol, 1980; Dunlevy, 1985; Winn and Shoenhair, 1988; Meek *et al*, 2007). The board of directors were more interested in the rate of growth of profits and not sales, and impose financial penalties on CEOs who appear to aim for sales and not profits.

It can be argued that these results support managerial theories of the firm because the board of directors penalise the CEO for not pursuing profit maximization. Therefore, the motivation for pursuing sales revenue growth is not financial, as the managers (CEOs) are being penalised. Therefore their motivation must be non-pecuniary (e.g. power or prestige).

However, these results can also be interpreted as offering support for profit maximization as the managers are being penalised for not aiming for profits. Presumably over time the managers will learn from this and start to focus on increasing the level of profitability of the firm.

The majority of studies have found no link between the profit performance of the firm and the remuneration of top managers. Jensen and Murphy (1990) found no link between the pay of senior managers and the ratio of average profits to total. Storey et al. (1995) and Gmez-Mejia and Sanchez (2006) report similar findings.

A number of studies have tested for a link between sales revenue and the earning of senior management, as suggested by Baumol (1959). Conyon and Gregg (1994) found that the pay of senior managers is strongly correlated with long-term performance measures (total shareholder returns) and not at all with current accounting profits. These findings are in line with other studies by Gregg et al. (1993), Conyon and Leech (1994) and Conyon and Nicholitsas (1998).

There are issues concerning the definition of ownership and control. When is a firm owner-controlled and when is it managerially-controlled? Studies of this nature pick an arbitrary figure (e.g. no more than 15% of shares owned by one person - see Winn, Daryl and Shoenhair, 1988) and use this to classify the firms. What happens if a small number of people own 10% each? Are they running the firm or are they leaving this to managers? The managers are often shareholders as well. The issue of corporate governance is more complex than just picking a figure; a more detailed analysis of share ownership and its spread needs to be

conducted so that firms can be correctly categorised.

This research limits these issues by having two specific sub-samples. The first sub-sample is taken from firms listed on the FTSE (all share index) where there is (normally) a relatively clear separation of ownership from control. The second sub-sample consists of owner-controlled firms. This results in a clear distinction between the two different types of business, and offers results with more validity as a consequence.

Winn and Shoenhair's (1988) findings suggest that the boards of directors have control, or at least influence, over the managers (CEO):

> "...the results suggest that boards of directors have goals, as revealed by their compensation polices for the CEO, which are consistent with accounting profit maximization, and that are not consistent with revenue maximization. In the context of agency theory, these findings support the view that owners, operating through their boards, have a degree of control over these firms' managers for these time periods." (Winn and Shoenhair, 1988; p 44)

This contradicts the main argument in support of managerial theories of the firm which is that, due to separation of ownership from control, managers can pursue their own objectives because shareholders are powerless. These results may also offer some insight into why managerial theories of the firm may not hold true. It is taken as a given that these firms must all suffer from weak corporate governance; that is, shareholders cannot influence the management of a firm, and managers have a free rein. This appears not necessarily to be the case, and it is possible that shareholders could influence the decisions of managers. This issue of corporate governance will be fully investigated in the following chapters of this thesis.

Other authors who undertook similar studies produced results which did not support these findings. Many studies followed on from Radice's (1971) seminal paper where the author failed to find support for the hypothesis that owner-controlled firms were more likely to profit maximize than managerially controlled firms. Similar results are recorded by various studies. For example, Singh (1971), Qualls (1976), and Levine and Aaronovitch (1981) all report results that do not support the alternative theories of the firm. Earlier research carried out by Kamerschen (1968) and Larner (1966) also supports the findings from Radice's work.

These studies suffered from a number of weaknesses. It can be difficult to define ownership and control due to issues of corporate governance and the difference between realised profits

and the level of profits that the firms were aiming to achieve also has to be taken into consideration.

These studies all suffer from simultaneous equation bias due to the two-way nature of the relationship between profits and growth. We expect the growth of profits and the growth of sales to have a positive correlation. It is therefore difficult to tell if a firm is aiming for sales growth or profit growth purely by an analysis of their figures. Within this work it has been possible to correct for this possible bias by asking the managers directly if they are aiming for profit or sales growth.

The methodology of this type of numerical analysis is seriously flawed. It involves analysing only mathematical links (e.g. managers who make higher profits get bigger wages). It does not follow that any manager who gets lower wages is aiming to increase sales at the expense of his own earnings.

In order to overcome some of the limitations of this purely quantitative (ex post) approach, this research is based on the combination of a postal questionnaire and face-to-face interviews. This allows us to evaluate the underlying motives for the managers' choice of business objective, and avoids making a generalisation based on the link between actual accounting profits and wages, which only considers the results of decision making and not the objectives behind these decisions.

2.10 Further Developments of the Theory of the Firm

As well as the managerial and behavioural theories of the firm previously discussed in this study, there have been a number of other theoretical developments within this research area. Although the main focus of this study has been on the seminal work of Baumol (1959), Marris (1964), Williamson (1964), Simon (1959) and Cyert and March (1963), there has also been a large number of complementary and contemporary developments within this field.

The transaction cost approach to firm theory was pioneered by Coase (1937) who suggested that firms exist in order to overcome the cost of using the market. That is the cost of discovering the correct price of the factors of production and the cost of negotiating a separate contact for each transaction. However this approach assumes that once the transaction has been internalised the owner or manager of the firm can monitor their employees to ensure that they work in accordance with their contract. This view was challenged by Alchian

and Demsetz (1972) who pointed out that the owner of a firm cannot control the factors of production in any complete sense:

> "It is common to see the firm characterised by the power to settle issues by fait or by disciplinary action superior to that available in the conventional market. This is delusion."(Alchian and Demsetz, 1972; p 119)

The firm is a collection of contracts between employees and employer that are constantly renegotiated over time and the owner of the firm has no more control over the firm's employees than when using the external spot market to hire labour. If an economic agent is dissatisfied with the service they receive in the market they can ask for better service or take their business elsewhere. There is little difference between this and the internal market of the firm. Jensen and Meckling (1976) agreed that the firm exists to monitor contractual relationships but argue that it is not limited to team-based production as suggested by Alchian and Demsetz. The nexus of contracts that have to be monitored is wider and includes all stakeholders (suppliers, creditors, customers etc). Barzel (1987) developed these ideas and suggested that the agent who was most likely to end up as the principal was the agent whose contribution to the production was the most difficult to quantify. The agency theory approach deals with problems of adverse selection and moral hazard which are both caused by imperfect information and as a consequence are not an issue in neoclassical firm theory (Shelanski and Klein, 1995; Dexit, 1996). If the firm is a nexus of contracts, internal and external, then the role of the firm becomes marginalised. Cheung (1983) has suggested that the firm is just a complex combination of contracts. The only difference between a firm and using the spot market is the on-going relationship between the input owners within a firm. Fama (1980) has suggested that economists should abandon terms such as "firm" and "entrepreneur" as all transactions (external or internal) are governed by relative prices. This view of the firm may at first appear to be similar to that of the neoclassical viewpoint were the firm is an efficient resource transformer. However on closer inspection, this is not the case. Within the neoclassical tradition the role of the firm is not discussed in any detail because if we accept that all firms are different then we cannot offer a general theory aimed at explaining the behaviour of the average firm. This is different to the nexus of contracts approach where the theorists try to offer a more realistic view of the firm. The extent to which this is achieved by arguing that firms do not really exist beyond a group of contracts is debatable. Notwithstanding the argument that an incorporated firm is a legal entity and is therefore in the eyes of the law very different to that of a nexus of contracts, the idea that

a firm is simply the sum of its parts has also been challenged within the contract literature. Property rights theories of the firm have been forwarded by Hart and Moore (1990), where a distinction is drawn between specific property rights, defined in the original contract, and residual rights. Residual rights can be defined as rights that accrue to the owner once all specific rights have been assigned (Grossman and Hart, 1986). That is to say they arise due to incomplete contracts and bounded rationality; no contracts can fully specify all the possible outcomes of a group of people working together or fully cover the benefit that may arise due to group production. Where Alchian and Demsetz (1972) have argued that firms or managers do not have any control over labour, property rights theories suggest that the owner of the residual property right does have control over the firm's assets as they can control the firm's physical assets and other less tangible assets (brand and image). Therefore the employee can be denied quasi-rents that are derived from their labours or can be denied access to the physical assets. The firm allows ownership of residual property rights that imperfect contracts cannot take account of and as a consequence the firm becomes more than just a group of contracts (Mahnke, 1997).

Another approach which also considers the firm to be more than the sum of its parts has been forwarded by Williamson (1975 and 1985). Once contracts have been agreed there is the potential for unforeseen consequences that would allow one party to the contract to renegotiate the contract in their favour. This is a particularly serious problem when assets are specific. A contract between two parties may create an asset that has a high value within the contractual relationship but that has no value outside of this relationship. This will give rise to the creation of a quasi-rent that one party to the agreement can attempt to exploit (Klein et al., 1978). This approach differs to that of Cheung (1983) and Fama (1980) as the problems of imperfect information and asset specificity are reduced by internalising the transaction within the firm. When transactions are internalised within the firm there is less room for one party to re-negotiate the contract in their favour (as they could in the spot market) as there would be a long-term employment relationship.

If we accept the argument that a firm is not the same as a group of contracts then the transaction costs approach offers a good insight into the existence of the firm in the first instance. However, Williamson's approach is based on neoclassical assumptions. As Fama (1996) contends:

> "More recently the literature has moved toward theories that reject the classical model of the firm but assume a classical form of economic behaviour on the part

of the agents within the firm." (Fama, 1996; p 302)

Therefore the firm in these transaction cost theories is either no different to a group of contracts or exists to minimize the cost of transaction in the market. One assumes that the reason for this is to maximize profits. Therefore the agents themselves are rational and demonstrate maximizing behaviour. The central theme of transaction costs theories, that firms exist in order to overcome (or reduce) the cost of using markets, represents a major contribution to the economists' understanding of the firm (Demsetz, 1988). However this theory is not mutually exclusive with the view that the owner or manager of a firm may attempt to maximize profits, as minimizing the costs of using the market is a necessary precursor to maximizing profits.

A number of authors have offered knowledge-based and strategic theories of the firm. These competence-based or knowledge-based theories have grown in popularity due to authors' dissatisfaction with the "black box" approach offered by the neoclassical theory of the firm and (transaction) cost minimization offered by Coase (1937) (Lipczynski et al., 2005).

These theories can be traced back as far as the Wealth of Nations in as far as their main focus is on the gains available from specialisation (Hodgson, 1998), although the idea of knowledge playing an important role in the theory of the firm was first stated explicitly by Knight (1921). Knight suggests that a key factor for the management of any firm is the ability to cope with uncertainly:

> "The fundamental fact of organized activity is the tendency to transform the uncertainties of human opinion and action into measurable probabilities by forming an approximate evaluation of the judgement and capacity of the man. The ability to judge men in relation to the problems they are to deal with, and the power to "inspire" them to efficiency in judging other men and things are the essential characteristics of the executive." (Knight, 1921; p 311)

Therefore firms exist to overcome uncertainties by grouping together units to form large organizations. Clearly this ability to make value judgements and inspire others to do likewise cannot be measured (and therefore valued) by the market, hence the existence of firms. This view differs from that offered by Coase (1937) and Williamson (1975) that firms exist in order to overcome the cost of using the market. Indeed it is the lack of a well-functioning market for entrepreneurial talent that necessitates the existence of the firm (Hodgson, 1998). Coase, however, did not accept the view that there can be no market for knowledge: "We

can imagine a system where all advice or knowledge was bought as required" (Coase, 1937; p 401). This view of knowledge is attacked as being too simplistic by Phelan and Lewin (2000) who argued that there is a difference between explicit knowledge and tacit knowledge that is embedded in employees and systems. It is difficult to separate tacit knowledge from the individual and therefore it cannot be valued and sold, hence the existence of firms (Kogut and Zander 1992). However Liebeskind (1996) argued that firms exist as they are better at protecting explicit knowledge that could be traded in a market. Of course the view of the firm as being efficient at protecting explicit knowledge is just a development of the transaction cost approach because the reason for the existence of firms is not the uniqueness of the firm's resources but the costs involved in monitoring employees and contracts to protect the firm's knowledge, when these costs are too high they can be reduced by internalising the relationships within a firm.

Drucker (1954) suggested that in order to achieve the continuing success needed for survival, senior managers must draw up a clear, unambiguous and measurable set of objectives for routine running. Ducker accepts that some level of profits have to be made for future investment but rejected profit maximization as the central aim of a firm. Further to this he claims profits can be a limitation, in that poor profits will limit how the other objectives of the business can be tackled:

> "Profit is not the purpose of business enterprise and business activity, but a limiting factor on it." (Drucker, 1954; p 37)

Penrose (1959) offers a theory of the firm where the key driver of success is the entrepreneurial managers' ability to exploit new markets, as diminishing returns will set in within the existing market. Penrose does not disagree with the theory of profit maximization:

> "The assumption on which this study is based is simply that the growth of firms can best be explained if we assume that investment decisions are guided by opportunities to make money..... it seems reasonable, therefore, to assume that in general the financial and investment decisions of a firm are controlled by a desire to increase long run profits." (Penrose, 1959; 27)

However, Penrose suggests managerial talent is as important as any other factor of production and should not be ignored. Here the focus is not necessarily on an individual manager but on the whole group of managers and how they learn to work together.

Penrose's theory offers an explanation for why firms diversify over time and why they grow, the ultimate reason being to maximize profits. However the crux of these theories is that all firms are a unique combination of resources. Wernerfelt (1984) suggests that firms are defined by the resources that they own. He argued that the neoclassical approach of only considering the technical relationship described by the neoclassical production function ignores the fact that there is a more complex relationship between the factors of production. Barnley (1991) divided capital into three groups, physical, human and organisational. Grant (1996) employed a similar method and split the firm's resources into tangible and intangible factors. Within a firm intangible resources are created in terms of common knowledge and shared practice amongst the firm's specialists. Therefore some knowledge is embedded in individuals and only becomes useful when integrated into the firm. Therefore firms exist because they are better at integrating tacit knowledge. However it is not clear that this view of the firm is mutually exclusive to the concept of maximizing profits.

Miller and Shamise (1996) argue that each firm is unique due to the resources it controls. This view followed on from that of Rumelt:

> "A firm's competitive position is defined by a bundle of unique resources and relationships" (Rumelt, 1984; p 557).

The idea that all firms are unique is in many ways similar to the position offered by the behavioural theorists:

> "The main interests of the capabilities view is to understand what is distinctive about firms as unitary, historical organizations of co-operating individuals." (Langlois and Foss, 1997; p 7)

Knowledge-based and resource-based theories focus on overcoming the limitations that the authors have suggested exist with the transaction cost theory view that firms exist in order to overcome the cost of using the market (Conner and Preahalad, 1996; Ghoshal and Moran, 1996). It is argued that firms operate with bounded rationality and that each firm is different due to the different resources it controls. Therefore each management team would, when faced with the same options, act in a different manner to the others. As a consequence the suggestion that firms will all respond to price signals in the same way is incorrect (Penrose, 1959; Ginsberg; 1994).

In reality firms face different choices and they are unlikely to only consider profit maximization or cost minimization when they make these choices (Teece, 1998). However we do not suggest that all firms face the same choices and that all decisions are made with the aim of profit maximization. As discussed in Chapter Three, the argument being tested in this thesis is that the owners or managers of firms have profit maximization as a business objective. That is to say that when the managers of a firm make major decisions that impact on costs and revenue, they will take these decisions with the aim of maximizing profits. These decisions will not maximize profits due to bounded rationality. We must also accept that different firms will make different decisions when faced with the same information. However the aim of these decisions will be to increase the long-run profitability of the firm.

The aim of neoclassical theory is to predict the behaviour of the average firm. This is an impossible task if we assume all firms, management teams, and managers are unique. A consequence of this uniqueness would be that the returns from employing homogeneous factors of production would be different due to the differences within these management teams. Indeed, if we assume that the returns from combining labour and capital are significantly influenced by the unique nature of every firm, it becomes impossible to discuss the average or representative firm. And of course this is the aim of the theory of the firm: to consider the average action of the average firm.

The approach adopted by neoclassical theorists is to ignore the differences that may arise due to different managers and assume that most managers will take similar decisions when faced with the same choices. That is to say that the average manager will attempt to profit maximize when making major decisions concerning their firms.

We must conclude that the resource-based theories presented above should be considered as complementary theories and not alternative theories of the firm as their concern is not with predicting the average behaviour of the average firm; instead their purpose is to explain how differences within the resources of firms can lead to a competitive advantage. This approach is an interesting one, but it is not an alternative for the neoclassical position. We presume that once a firm has built a competitive advantage, with its unique combination of resources, it uses this advantage to maximize its profits.

The transaction costs approach pioneered by Coase (1937) and developed by Williamson (1975 and 1985) paved the way for the development of agency theory (Jensen and Meckling, 1976) and the development of the firm as a nexus of contracts (Alchian and Demestz, 1972). However these theories do not cause any difficulty for the concept of profit maximization

because they assume that the aim of the firm is to minimize the costs of using the market for transactions and the only reason that the decision makers are interested in minimizing costs is to maximize their profits. Even when authors suggest that firms do not exist and are merely an efficient nexus of contracts (Fame, 1980) surely the outcome of this efficiency is the maximization of returns to the parties involved. Therefore nowhere in the transaction costs literature is profit maximization falsified.

Although a number of other authors have offered different explanations concerning firm behaviour, they have all influenced or been influenced by the representative authors discussed within this study. Therefore, for simplicity, it is appropriate to consider the validity of the managerial (Baumol; 1959, Marris; 1964, Williamson; 1964) and the behavioural theories (Simon; 1959, Cyert and March; 1963) of the firm as they offer a good representation of the alternative theories of the firm.

2.11 Conclusion

In this chapter of the study, neoclassical, behavioural and managerial theories of the firm have been introduced and discussed. A critical review of the previously conducted research in this area has been undertaken. This review has highlighted the limitations of the previous empirical research. These limitations fall into two main categories. Firstly, there are problems with the samples used for the various studies. Hall and Hitch (1939) and Hornby (1995) used samples which were too small to offer results that can be classed as reliable. Others concentrated on only one area of UK businesses (e.g. Shipley (1983) focused on manufacturing firms). The second limitation that these earlier research projects share is a lack of validity. The purely quantitative approach adopted by these researchers led to results being produced that could not be verified.

The aim of this research project was to overcome the limitations identified. This was achieved by sampling a population that included all types of firm. Various techniques were also employed to increase the response rate. This reduced the sample-related problems identified in this review of the literature.

The lack of validity, identified in the previous research, was reduced by using a combination of qualitative and quantitative data collection methods. The exact methods employed to deal with the issues raised by this review of the literature are set out in detail in the fourth (methodology) and fifth (data collection and models) chapters of this study.

Chapter 3

Corporate Governance and Business Objectives

3.1 Introduction

The aim of this chapter is to review and discuss the theories that underpin the concept of corporate governance. Shareholder theories of corporate governance will be discussed, and will be followed by a review of stakeholder theories of corporate governance. It will then be possible to review the impact that the level of corporate governance has on business objectives. The relevance of corporate governance to the neoclassical and managerial theories of the firm will then be discussed and evaluated.

3.2 Corporate Governance

The Cadbury Report of 1992 defines Corporate Governance as,

> "The system by which companies are directed and controlled, boards of directors are responsible for the governance of their companies. The Shareholders' role in governance is to appoint the directors and auditors and to satisfy themselves that an appropriate governance structure is in place in the organisation. The responsibilities of the board include setting the company's strategic aims, providing leadership to put them into effect, supervising the management of the business and reporting to shareholders on their stewardship. The board's actions are subject to laws, regulations and the shareholders' general meeting."

(Cadbury, 1992:Para. 2.5)

This represents one of many different definitions of corporate governance. The UK, US and the OECD have all developed codes of practice that have been based on shareholder theory and the price mechanism. This means that the shareholders are the ultimate owners of the firm, that they bear the risk and in return gain any profits that the firm makes. There are two different models of corporate governance that can be classified as shareholder theories. These theories, although different, are similar in their interpretation of what the managers of a firm should be aiming to do. The principal-agent or finance model (Manne,1965; Jensen and Mecking, 1976) states that the purpose of the corporation is the maximization of shareholders' profits. The Myopic Market Model (Charkham 1994a, 1994b and 1989; Sykes, 1994) also proposes that the aim of the corporation is the maximization of shareholders' profits; however this model is concerned with the sacrifice of the long-term value of the firm in favour of the short-term value.

An alternative view of corporate governance is offered by the stakeholder model (Freeman, 1984; Evan and Freeman,1988; Blair, 1995). The stakeholder model suggests that firms should aim to maximize stakeholders' wealth, and not just shareholders' wealth. A stakeholder is any group or individual, who can affect or be affected by the actions of the firm. This includes workers, the local community, shareholders, customers, suppliers, etc. The Executive Power Model (Hutton, 1995; Kay and Silberston, 1995) claimed that the purpose of the firm is the maximization of corporate wealth as a whole.

3.2.1 Shareholder Models of Corporate Governance

As we have already discussed above, corporate governance in the UK has developed using the shareholder models of corporate governance as its main theoretical underpinning. The principal-agent or finance model (Manne, 1965; Jensen and Meckling, 1976; Baiman, 1982, 1990; Strong and Waterson, 1987; Shleifer and Vishny, 1997; Dalton et al., 2003) places the shareholder at the centre of the corporation. It is assumed that these shareholders, as the owners, bear the highest level of risk. The underlying principles of the model are that the market for corporate control, managerial labour and capital provide the most effective constraints on managerial discretion. That is to say, if the managers of a firm do not satisfy the shareholders, they may lose their job and find it difficult to get a replacement position if they are regarded as being unsuccessful (Fama, 1980; Fama and Jenson, 1983).

It is assumed that a firm's corporate governance arrangements will have been formed by a process of negotiation over time through a process of bargaining between all interested par-

ties. The principal-agent/finance model assumes that profit maximization by firms is most likely to result in welfare maximization (in the absence of serious externalities). Therefore it is best to leave firms to profit maximize without interference from the state. However, the separation of ownership from control will have an effect, as the managers of the firm may aim to maximize their own utility at the expense of the shareholders' utility (profits). Shareholders therefore need to be able to exert an influence over the managers of the firm (the ultimate influence being to sell the shares).

The myopic market model of corporate governance is also concerned with the maximization of shareholders' profits. However, this model is interested in the maximization of short-run market value and not the long-run outcome. It is argued that the market continuously undervalues certain activities (e.g. R&D and capital expenditure) and, as a consequence, if managers focus on the long term, by investing in capital and research and development, they may be penalised. As the market does not value these long-term goals, the current share price of the firm will be low and the firm will be open to takeover, the result of which would be managers losing their jobs. This market myopia forces these managers to aim for the maximization of short-term value over the maximization of long-term profits. Therefore the current corporate governance regulations encourage this short-termism which is often assumed to be inherent in the UK and US capital systems (Blair, 1995).

Both these models, whilst having significant differences, have been developed from the same basic assumption, this principle being that the shareholders of the firm, as the owners of the firm, have a right to expect that the managers of the firm will act in accordance with their wishes. These wishes are assumed to be the maximization of their wealth which is achieved by the management of the firm attempting to maximize profits (over a certain time period).

In this study, this type of corporate governance (shareholdership) has been measured using the FTSE ISS Corporate Governance Index. This index considers the extent to which managers of a firm are allowed to act in their own interest and the extent to which their actions are curtailed by governance regulations in place. As discussed in Chapter Five, the index considers 63 different variables that have been designed to assess the level of corporate governance (based on the shareholder approach) within the firm's management structures. We have therefore been able to test to see if there is a link between a high level of corporate governance and the likelihood that a firm will aim to profit maximize.

3.2.2 Stakeholder Models of Corporate Governance

The stakeholder theories of corporate governance are concerned with the maximization of the utility of all interested parties and not only with maximizing shareholders' utility. This view implies that firms may not be interested in maximizing profit or returns to shareholders, but that they should be interested in maximizing the utility of all interest groups. The term maximization should be interpreted as improving the utility of these groups that would lead to a maximum level of utility. In reality, we do not necessarily expect utility or wealth to be maximized. Rather, we expect managers of firms to take decisions that improve stakeholder wealth or utility.

Whereas the UK and the US have developed a set of guidelines around the idea of the shareholder theory of corporate governance, other countries have employed stakeholder theories. Germany, for example, has boards of directors that will normally include banks (to monitor the actions of the board), other major companies and worker representatives. Therefore they have included a wider number of stakeholders and not just shareholders. Kay and Silberston (1995; p88) have suggested that,

> "these shareholdings are themselves evidence of the German conception of the company as a social institution; as a community in itself and an organization in turn embedded in a community"

In this study, a dummy variable (Chapter Five) has been constructed to classify firms as being either stakeholder or shareholder firms. The aim of this classification is to consider both (dominant) models of corporate governance. In the UK the concept of corporate governance is taken normally to mean the extent to which the managers of a firm act in accordance with the wishes of the shareholders of the firm and therefore the practice of evaluating governance structures is linked more with the shareholder approach and not the stakeholder approach. For example, the number and independence of non-executive directors, the structure of equity ownership, etc is used to assess the strength of a firm's governance (for a full understanding of how firms in this study have been classified as having a high or low level of corporate governance, see Chapter Five). During this study it was possible to test the stakeholder approach to corporate governance, along with the shareholder approach. The dummy variable (ST/SH) splits firms into stakeholder and shareholder firms. The classification was made by considering the answer to three questions from the postal questionnaire. These questions asked if the managers/owners of the firm treated all workers equally and

if they considered other stakeholders as well as the shareholders (for the full methodology see Chapter Five).

3.3 Business Objectives

The term business objective has been applied to the concept of profit maximization in the first two chapters of this study. However, there is no single agreed definition of what is meant by the term. In this thesis when profit maximization is referred to as a business objective or central business objective the intention is for the meaning to be clear.

What is not meant by the term is that all actions and decisions taken by the owners/managers of a firm are aimed at profit maximization. Furthermore, we do not suggest that all stakeholders within a firm will share this objective and strive at all times to achieve a maximum level of profits. Instead, what is being forwarded is the idea that an individual or small number of key decision makers will make important decisions with the aim of maximizing long-run profits. For instance, a small firm may employ an extra member of staff if that member of staff will add more to revenue than to costs, or a large PLC may locate a new factory in Ukraine if it will be more profitable than other appropriate locations. There is no guarantee that these actions will maximize the firm's profits but that is the aim of the decision makers. In reality any decisions that increase profits will be treated as good decisions, as long as alternative decisions would not (clearly) have increased profits more. We are not interested in every small detail of the firm, and we are not suggesting that all firms will profit maximize at all times. What is being suggested (and tested) is that, on average, decisions within firms are made with increasing profits in mind, and not the sales or the salaries of the managers etc.

It also must be accepted that businesses are made up of individuals and that human beings have a complex variety of wants, needs and desires. Nevertheless, we must assume that when we make a decision there must be some overriding aim or force driving us towards that decision.

Likewise, in large firms with complex organisational structures and a large number of employees, there will be a large number of decisions being made by a vast number of individual members of staff. Staff may not work as hard as they could, they may steal, they may do numerous different things that lose the firm money. This does not negate the concept of profit maximization as a business objective. If the senior decision makers that run a firm have profit maximization as their central business objective then we can predict their likely

behaviour with some degree of confidence, no matter what actions the staff do or do not take. If the senior decision makers are considering a new product then we can assume that it is the likely long-run projections on revenue and costs that will determine the decision, regardless of the actions of the firm's employees.

Generally a business objective could be said to be an overriding aim of the owners or managers of a firm. That is to say that a business objective should be used as the basis to decide on major decisions that the owners or the managers take.

As discussed above, the concept of corporate governance in the UK is concerned with the degree to which the managers of a firm act in accordance with the shareholders' wishes. Another method of looking at this is to consider the extent to which a firm's business objectives are the same as the wishes of the shareholders.

3.4 Profit Maximization and Corporate Governance and the Owner-Controlled Firm

In this study we are interested in the business objectives of all firms (profit-making organisations). Indeed, the data that has been collected to add to our understanding of firms' objectives has deliberately been taken from a random sample of UK firms so that all sizes and types of firms could be represented (for a more detailed discussion of the sampling methods used see Chapter Five). Applying the concept of corporate governance to owner-controlled firms may appear an unnecessary task, as surely an owner-controlled firm is an irrelevance when considering the issue of corporate governance. If we take an owner-controlled firm to be one where one person owns a majority of the shares and also directly controls the firm then we can assume that the objectives of this owner-controller will be the same as that of the firm. As discussed earlier we cannot assume that all employees will attempt to do their best to help the owner meet these objectives. Nevertheless, it can be assumed that the aims and objectives of the owner will also be the aims and objectives of the firm. We could then conclude that the firm has a perfect level of corporate governance. Therefore whatever business objective the owner controlling the firm sets will be the business objective of the firm.

Neoclassical economics assumes that the reason that an individual operates a business is to maximize their profits. This is because the rational economic agent wants more profit to increase their utility from the consumption of goods and services. The extent to which this is true or not has been discussed theoretically in the second chapter and evaluated empir-

ically in the seventh chapter. The important issue here is applying the idea of corporate governance to all firms and not just joint stock firms. If we do this then we can formulate a common measurement that considers the extent to which the shareholders of a firm can influence the managers of a firm. At one end we have owner-controlled firms where there is no distinction between the owners and the managers, and at the other extreme we have large joint stock firms where there is a separation of ownership from control. All these firms (all firms) can be defined as having either a high level or a low level of corporate governance (see Chapter Five). This approach allows us to consider the actions of all firms. This is in contrast to the alternative theories of the firm (managerial and behavioural etc) which typically have only been of value when considering the action of a small number of large firms.

3.5 Managerial Theories of the Firm and Corporate Governance

The shareholder theories of corporate governance (Manne, 1965; Jensen and Mecking, 1976; Charkham, 1994a, 1994b) were developed to consider the same issues as those under consideration by the managerial theorists, namely, the principal-agent problem that arises from the separation of ownership from control within joint stock firms.

Where Williamson's (1964) and Marris's (1964) thinking is especially useful is not at the general level of a "theory of the firm" but in more specific discussions on the effects of separation of ownership from control and its effect on the small number of firms which are relevant to the issue. And so it seems that the theorists behind the "managerial theories of firm" may have focused their attention in the right area but on the wrong variables. These theorists consider the separation of ownership from control, and the level of competition, to be the relevant factors in determining the behaviour of managers in PLCs. It is more appropriate to consider the level of corporate governance as a measure of a manager's ability to place his motives above those of his principals.

If we accept the argument that managerial theories of the firm cannot, and indeed have not, replaced profit maximization as the central theory of firm behaviour applicable to all firms (see Chapter Two), we can then move on to consider why these theories seem unable to reliably predict the actions of the small number of firms that their treatment is intended to explain.

There is no shortage of anecdotal evidence suggesting that large firms (PLCs) aim to max-

imize their sales rather than their profits. It is particularly noticeable in oligopolistic markets. But previous academic research has produced mixed results, with no majority of researchers or research methods either supporting or negating this hypothesis. A full review of the relevant research has been undertaken in the second chapter of this work.

If we surveyed the media we would be in no doubt that supermarkets or car manufacturers talk about growth in terms of sales not profit. This fits in with the general hypothesis offered by the managerial theories of the firm, and specifically with Baumol's (1959) treatment of the subject. Why then is there no strong empirical evidence to support these managerial theories, and often compelling evidence to be found against such theories?

The central plank of these theories is the separation of ownership from control. There is now a strong assumption that large PLCs are all managerially-controlled, as discussed earlier in this study. This is often not the case in the UK where there are often large institutional shareholders who are willing to get involved in the governance of firms (evidence that confirms this view is presented in Chapter Seven). Indeed Berle and Means' (1932) research suggests that the separation of ownership from control (by their own definition) is only found in half of the firms they examined. Also, approximately 60% of UK shares have traditionally been held by institutional investors, who do play some active role in monitoring the actions of the management of firms (Griffiths and Wall, 2004).

This suggests the possibility that the general hypothesis of the managerial theorists, that managers have different objectives than owners, may well be correct, even though in some large PLCs there may be a stronger level of control from shareholders than previously thought. Indeed, the problem with managerial theories may be the definition of a managerially-controlled firm, normally taken to be any PLC. The important indicator of the actions of the people who manage firms may not be whether or not they are owners but may be the level of effective control that shareholders can impose on the management. Therefore, some PLCs may aim to maximize sales revenue at the expense of profits. This is more likely to be the case in firms where there is a high degree of separation of ownership from control. Other PLCs may aim to maximize profits because shareholders within these firms may be able to control the actions of the management team. Of course this only holds true if we assume that individual (and institutional) shareholders aim to maximise their own returns by holding shares in the firm in the first instance.

If we term the ability of shareholders to control the managers of a PLC i.e. the ability to make managers pursue the objectives of the shareholders) the level of corporate governance

within a firm, then we can use this definition to test managerial theories of the firm. Rather than compare owner-controlled firms to managerially-controlled firms, we can compare firms with a high level of corporate governance to firms with a low level of corporate governance.

No attempt has been made to include behavioural theories of the firm in these theoretical arguments as they are not theories of firm behaviour. The theories developed by Simon (1945, 1959) and Cyert and March (1963) are not concerned with modelling the behaviour of the average firm or even the average large firm. Rather, they are interested in how decisions are made within large organisations. Although this is an area of obvious interest to various people, it is of no consequence when trying to explain the overriding objectives of the average firm. The point of neoclassical economics is to provide a simple overview of productive units that can be used to predict the actions of the average or "representative" firm. Marshall contends that,

> "Economic Law is a statement that a certain course of action may be expected under certain conditions from the members of an industrial group: and that action is the NORMAL action of the members of that group." (Marshall, 1890; p 87)

Indeed, it is not due to any lack of insight on the part of neoclassical economists that the theory of the firm does not explain how decisions are made. Rather it is the intended purpose of the theory of the firm to treat firms as "black boxes" and to use these representative firms to gain understanding of the actions of firms and markets. This analysis underpins the basic Structure-Conduct-Performance paradigm. This paradigm (amongst other uses) accurately predicts the different actions of firms under competition and monopoly. Although analysing the decision-making process in a firm or a group of firms is an interesting area of study in its own right, it is of no use in the theory of prices and production of which profit maximization is an integral part.

No attempt has been made to explicitly include the various new theories of the firm that have been developed (e.g. agency theory, contract theory etc). These theories are all an extension of the principal-agent problem that lies behind managerial theories of the firm. Therefore, exploring these theories directly offers no new insight. Instead, we can use the managerial theories, and the principal-agent problem in particular to act as a proxy for these new developments (see Chapter Two).

The premise we put forward and test in this study is that the problem lies not in the

basic idea that the separation of ownership from control may cause a classical principal-agent problem, but in the suggestion that it must cause a principal-agent problem. The previously forwarded position appears to be that, if we accepted that large firms are often controlled by professional managers and that no one individual owns an arbitrarily large percentage of the share capital of these firms, then the managers can act, with some small constraints, as they please and aim for alternative goals to that of profit maximization. This position does not take into account the fact that most firms are not joint stock firms. The main London Stock Exchange has a listing of less than three thousand firms. More importantly, the shareholders of a firm are the legal owners of that firm, and although there is no suggestion that they are in any way involved in the day-to-day management of the firm, that is not the same as saying that their wishes are not taken into account. This may be especially true in an economy like the UK where a large percentage of all shares are held by institutional investors who can exert an influence on the senior management of a firm.

It is also fair to claim that, in the light of recent corporate failures (Worldcom, Enron etc), there has been an increase in the level of interest in the running of large firms over the past ten years, with the issue of corporate governance being awarded a high degree of importance by all the stakeholders of a firm.

Therefore, if we accept that the average shareholder in a firm is interested in maximizing their returns and that these returns, whether capital or dividend payments, are likely to be linked strongly to the long-run profits of the firm, then we can confidently conclude that shareholders would expect the managers of the firms that they co-own to aim for a maximum level of profit. This is likely to be stronger in large firms with a wide and dispersed share-ownership structure. After all, what other motives could there be to own shares in such a large firm? It is conceivable that one might own shares in a small firm that one is involved with for sentimental reasons, but surely the only motive for purchasing shares in a large anonymous PLC is the possibility of financial gain.

The theoretical debate above led to the formation of two new hypotheses concerning the actions of firms. These new hypotheses have been tested later on in this thesis. If we accept that the rational economic decision-maker wants to maximize returns from holding his shares and that, over the long-run, the share price and dividends paid out by the firm will be closely correlated to the firm's profits, then we can assume that the shareholder of a firm will want the managers of the firm to take decisions that increase long run profits.

Therefore, a firm with a high degree of corporate governance, where the managers attempt

to satisfy their shareholders should be aiming to maximize profits in the long-run. This leads to the hypothesis that there is no distinction between owner- and managerially-controlled firms. There is only a distinction between firms where the owners can influence the managers to follow the owners' objectives, either by owning and managing the firm or by imposing strong control over the managers, and firms where the owners do not manage to exert strong control over the managers, who are then free to pursue their own objectives. If we call this ability to control managers the level of corporate governance, then we can say that firms with a high level of corporate governance will aim for a maximum level of profits more than firms with a low level of corporate governance.

The stakeholder interpretation of corporate governance suggests another testable hypothesis. If firms aim to maximize their stakeholders' wealth or utility and not profits, then we should be able to test for a relationship between firms not profit maximizing and firms being classified as stakeholder firms(see Chapter Four).

3.6 Conclusion

In this chapter the stakeholder theories of corporate governance and the shareholder theories of corporate governance have been explained. The shareholder theory of corporate governance has emerged as the theoretical underpinning for the UK system of corporate governance. The concept of corporate governance has then been linked with business objectives, and an understanding of the link between a high level of corporate governance within a firm and that firm aiming to maximize profits has been set out.

Chapter 4

Methodology

4.1 Introduction

The aim of this chapter is to outline in detail the specific paradigm of inquiry that will be used to inform this research project. The positivistic, postpositivistic, constructivist and critical theory paradigms are explained and reviewed within this section. This review of the different paradigms leads to postpositivism emerging as the most appropriate paradigm in which to ground this research project. In concurrence with the methods proposed for use within the postpositivistic paradigm of inquiry, a number of hypotheses have been developed. These hypotheses were developed from the theoretical discussion that was undertaken in the second and third chapters of this thesis. Testing these hypotheses will help to push forward our knowledge and understanding of the theory of the firm. These hypotheses are carried forward throughout the rest of this thesis and are used to construct the analysis and conclusion sections of this study. The exact methods for testing these hypotheses are detailed in the following chapter (Data Analysis and Models).

Kuhn (1970) proposed the concept of specific paradigms, suggesting that there can be more than one set of basic beliefs about what constitutes reality and counts as knowledge. A paradigm of inquiry can be identified as,

> "A basic set of beliefs that guides action, whether of the everyday garden variety or action taken in connection with a disciplined inquiry." (Guba, 1990; p 8)

The standard paradigm of inquiry adopted by previous researchers in this field was identified in the review of the literature in the previous chapter. The common approach is to use the positivistic paradigm, which requires the researcher to use an experimental methodology

that has, mostly, been combined with quantitative techniques (Hall and Hitch, 1939; Lester, 1946; Shipley, 1983; Jobber and Hooley, 1987; Hornby, 1995).

In this chapter the positivistic paradigm is discussed and compared with postpositivism, constructivism and critical theory.[1] Postpositivism is identified as the appropriate paradigm to guide this research by identifying the limitations in the previously reviewed literature and explaining how the use of the postpositivistic paradigm of inquiry will limit similar weaknesses in this research project.

A number of hypotheses were developed following the review of the literature. The methods used to investigate these hypotheses will be explained in detail in the following chapter. An explanation will be given in this chapter of how the use of a different paradigm of enquiry has led us to employ different methods. These different methods help to reduce the problems associated with the positivistic paradigm which were identified in the previous literature.

4.2 Paradigms of Inquiry

Although there are many different types of paradigm and numerous interpretations of what the term "paradigm" means, there is a consensus of opinion about what a research paradigm is concerned with (Guba 1990).

Guba wrote: "Nevertheless, all these past paradigms, as well as the emergent contenders, can be characterized by the way their proponents respond to three basic questions, which can be characterized as the ontological, epistemological, and the methodological questions." (Guba, 1990; p42)

Annels (1996) argues that we can break down the paradigms of inquiry (by applying these three basic questions) into four main categories. These are: positivism, postpositivism, critical theory and constructivism.

The ontological question is concerned with a person's ability to know or understand the world, and phenomena within this world. Does one certain reality exist, and if so, to what extent is the researcher's ability to understand this reality limited?

The epistemology of a paradigm of inquiry deals with the relationship between the researcher and the research. Will the researcher have an influence on what is being researched or can the two be separated, so that the researcher can act as an outside spectator who will have no influence on the phenomena being observed?

[1] Critical theory is the term used by Guba et al. to cover a number of similar paradigms of inquiry.

The methodology of a research paradigm looks at the actual methods and tools that the researcher will employ in order to carry out the project in question.

Positivism, developed by Comte and St. Simon, was an attempt to apply scientific methods and methodology to the social sciences (Guba, 1990). The ontology of positivism is based on the assumption that one absolute reality exists and that it is measurable and is external to the observer. "Positivism is rooted in a realist ontology, that is, the belief that there exists a reality out there, driven by immutable natural laws" (Guba, 1990; p 21). This approach, referred to as 'naïve realism', commits the positivist researcher to an objectivist epistemology. If an external and measurable reality exists it follows that the researcher is independent from the research being conducted and can act as a value-free, objective observer of phenomena.

The methodology of positivism was therefore concerned with measuring reality (or what the researcher perceived reality to be) using a reliable method. It is concerned with the use of quantitative methods to find statistically significant relationships between variables that can be built up into laws. Collis and Hussey considered the positivistic methodology to be concerned with "...establishing causal relationships between the variables by establishing causal laws and linking them to a deductive or integrated theory" (Collis and Hussey, 2003; p 53).

Earlier studies identified in the review of the literature used this methodological approach. Hypotheses were set up to prove the relevant theory (Hall and Hitch, 1939; Lester, 1946; Shipley, 1983; Jobber and Hooley, 1987; Hornby, 1994). The authors collected data using a postal survey and attempted to prove (support) the theory with a certain degree of probability. Research carried out in this manner lacks validity. It is not possible to understand how different subjects interpreted the questions, therefore the validity of such responses is weakened.

To overcome this lack of validity, we undertook a number of semi-structured interviews. The use of interviews and other qualitative methods is associated with a constructivist paradigm, where the researcher accepts that it is difficult to measure and understand reality and that it is impossible to separate the researcher from the research. The aim of inquiry within the constructivist paradigm is to generate understanding (Carr and Kemmis, 1986); this is contrasted with postpositivism were the aim of the inquiry is to give explanation. Postpositivism is concerned with generalization and rigour (Von Wright, 1971).[2]

[2]Shipley (1983) undertook some follow-up interviews by telephone. The aim of these interviews was to help him interpret the questionnaires that had been incorrectly completed. These interviews were not

If we place positivism at one end of the paradigm spectrum, then constructivism would represent the polar opposite (Annels, 1996). The constructivist paradigm is relativist; realities exist, but the understanding of knowledge is imperfect and dependent on the individual seeking the knowledge (ontology). There is no separation between the ontology and the epistemology: "inquirer and inquired are fused into a single (monistic) entity. Findings are literally the creation of the process of interaction between the two" (Guba and Lincoln, 1994; p 111). The methodology is qualitative, aiming to generate results that have a high level of validity. Therefore the use of interviews should offer the researcher a greater understanding of how the concepts under investigation have been interpreted by the respondents.

The results of these interviews were combined with the results from the postal survey. This combination of qualitative and quantitative techniques offers an insight into the interpretation of the questionnaire by the respondents, and increases the validity of the research results.

In the middle of the spectrum lies postpositivism and critical theory. Critical theory was developed to overcome the problems that some social scientists think may still exist within the postpositivistic paradigm (Guba and Lincoln, 1994). Howell considered the ontology of critical theory to be "historical realism": "A general perspective of critical theory ontology involves an understanding that reality is shaped through historical process and may be defined as 'historical realism"' (Howell, 2004; p 11). The ontology of critical theory is based on the assumption of the postpositivistic paradigm, i.e. reality exists but can only be incompletely understood by the enquirer. The epistemology is subjective; the values of the inquirer will have an influence on the inquiry. Critical theory uses mostly qualitative methods to challenge the existing theory. This theory challenging pushes forward knowledge and helps to generate new theories, and new interpretations of existing theories.

The postpositivistic paradigm is a development from the positivist paradigm. The differences between the two paradigms may at first appear small. Guba contended that "postpositivism is best characterized as a modified version of positivism" (Guba, 1990; p 109). However, postpositivism is seen as a method for limiting the problems of positivism. "Having assessed the damage that positivism has incurred, postpositivists struggle to limit that damage as well as to adjust to it" (Guba,1990; p 108). This view is further supported by Denzin and Lincoln (1998, 2000). Others have asserted that postpositivism has developed in a more progressive manner and is not merely limiting the mistakes of positivism (Clark,

designed to gain greater understanding of what the respondents were thinking, only to clarify any ambiguous responses e.g. where a respondent missed out a question or appeared to select two answers.

1998; Schumacher & Gortner, 1999). When we consider the ontology, epistemology and methodology of postpositivism there are a number of critical distinctions.

The ontology of postpositivism moves the researcher from the naïve realism of positivism to what is termed as critical realism (Racher and Robinson, 2002). Under both paradigms reality is assumed to be knowable and certain. However, when the researcher moves from positivism to postpositivism it is accepted that, although one certain reality may exist, it is too complex to be perfectly understood. A social scientist (for example, an economist) who studies the behaviour of society cannot expect to fully understand how human beings "work" in the same way that a natural scientist can understand the laws of acceleration.

This represents an acceptance that the researcher cannot interpret his findings as absolute facts and that all research should be subject to the widest possible critical examination. Popper (1959) argued that researchers should construct hypotheses and let other researchers challenge the results (the original researcher could critique his own results, although Popper accepts this is unlikely). This process of attempting to falsify theories/hypotheses will push forward knowledge.

The epistemology of postpositivism is dualist, both subjective and objective. Researchers attempt to be objective but understand that their beliefs and knowledge will have an influence on the research, and an attempt is made to limit this.

The methodology of postpositivism differs from that of positivism. Positivism is concerned with the verification of hypotheses; postpositivism is concerned with the falsification of hypotheses.

Popper contended that theories can not be verified: "no matter how many instances of white swans we may have observed, this does not justify the conclusion that all swans are white" (Popper, 1959; p 27). It has to be accepted that truth is unknowable therefore, it cannot not be claimed that there are any absolutely authoritative foundations to base scientific knowledge on (Phillips, 1990; Greene, 1999).

Theories and hypotheses that have been evaluated and challenged and have not been falsified by this process gain some "basis". That is, they are assumed to have some current worth. These theories may be used as the basis for what Kuhn calls "normal science" (Khun, 1970). However, it is likely to be through the falsification of existing theories that new theories are constructed.

By testing the current theories that have not been falsified (profit maximization, managerial and behavioural theories of the Firm) it is hoped that a new idea might be developed that

can offer some insight into the behaviour of the decision makers within a firm.

The postpositivistic paradigm of inquiry is the most appropriate paradigm of inquiry for this research project. In order to overcome the limitations of positivism, postpositivism was adopted. Traditionally, using the purely quantitative approach which is normally associated with positivism (although this does not have to be the case) will lead to the generation of results that lack validity, although they should be reliable. By accepting the limitations of positivism and moving to postpositivism, an attempt has been made to maintain the reliability of the research, whilst increasing the validity of the outcomes. Although this has been achieved primarily by using follow-up interviews to validate the responses to the original questionnaire, the move from positivism to postpositivism is not solely concerned with methods. The different ontological and epistemological approach offered under the postpositivistic paradigm results in the researcher accepting the difficultly of interpreting reality. Although using the postpositivistic paradigm of inquiry has not eliminated the problem of understanding the complex reality of human behaviour, it has at least allowed these problems to be identified and, where possible, reduced. More importantly, throughout this research project we are aware and accept the limitation of the chosen approach. This self-awareness results in a more complete understanding of the results generated during this project.

It may have been possible to deal with the issues raised above by adopting a set of more quantitative methods based within a phenomenological paradigm of inquiry. Although grounding this research in a phenomenological paradigm would have generated more valid results, the resultant loss of reliability would have been too high a price to pay. Here it should be remembered that the main aim of this study is to test and refine the neoclassical theory of the firm. It is not appropriate to test a generalist, abstract theory such as profit maximization, using an individualistic, phenomenological approach. The aim of this research is to offer insight into the actions of the average or representative firm; there is no interest in the detailed functioning of an individual firm. Instead we attempt to offer generalisations that are relevant to all firms, or at least a significant number of firms.

In clarification, the methodology that underpins this study is informed by the postpositivistic paradigm of inquiry. There are a number of limitations that arise from the use of such a methodology. Firstly, as discussed above, we have to sacrifice validity for reliability.

Conversely we have also given up some level of reliability for validity. We have not used a precise mathematical formula (e.g. Tobin's Q) to arrive at the classification of firms.

Instead, firms have been classified as profit maximizers (or non-profit maximizers) using the results of a postal questionnaire. The more positivistic approach would have allowed us to classify the firms with a higher degree of confidence. That is to say, the reliability of a more quantitative classification would be higher than the methods used in this study. The reason for the use of a questionnaire is that we are interested in profit maximization as a business objective (see Chapter Three).

But whatever our motivation, the fact remains that the choice of methods has resulted in a less reliable classification of a profit maximizing firm than may have been the case with alternative methods, underpinned by an alternative methodology.

4.3 Hypotheses

When employing the postpositivist paradigm of inquiry it is possible to challenge existing theories. Popper (1959, 1963) refers to this as falsifying theory. In order to challenge existing theories a number of hypotheses are developed to test the validity of neoclassical, managerial and behavioural theories of the firm. Two original hypotheses are also developed and tested.

The starting point of this project was to test the assumption of the neoclassical theory of the firm, namely that all managers of firms aim for a maximum level of profits. Assuming all firms do not profit maximize at all times, then a number of hypotheses are needed to test why firms do not profit maximize, and also to test the alternative theories which were reviewed in the second and third chapters of this thesis.

Hypothesis 1

H1: There will not be a relationship between firm size (turnover) and profit maximization.

Baumol (1959) forwarded his revenue maximization hypothesis which suggested that the managers of large firms are more likely to maximize sales revenue and accept a lower level of profit. Managers of firms are more likely to aim for a maximum level of sales, according to Baumol, because sales are more closely linked to salaries than profits. Baumol also suggested that the level of a firm's sales is the normal indicator of the health of a firm and therefore may influence a firm's ability to raise finance. Therefore the managers of large firms are more likely to be rewarded, and be seen to be successful, if they aim to maximize the sales revenue of the firm. This implies producing beyond the profit maximizing output.

Hypothesis 2

H2: There is no relationship between a firm's decision to profit maximize and the concentration ratio of the industry in which the firm operates.

H2: There is no relationship between a firm's decision to profit maximize and the concentration ratio of the industry in which the firm operates. The level of competition was also seen as being relevant by Baumol. It was suggested that firms that operate in an oligopolistic market structure are less likely to profit maximize than firms that operate within a more competitive environment. Firms that operate under an oligopolistic market structure are less likely to directly compete on price as this results in price wars. Under such market conditions firms are more likely to compete on advertising and aim to increase their market share. As a result there is less pressure to maximizes profits and more pressure to aim for an increased level of sales.

Non-rejection of both null hypotheses would undermine the validity of the sales revenue maximization hypothesis offered by Baumol to explain the actions of firms. If there is not a negative relationship between the size of the firm (sales) and the likelihood of that firm aiming to maximize profits, then this contradicts Baumol's central idea. Baumol(1959) developed his theory to explain why large firms are not likely to profit maximize. These ideas were explained more fully in the second chapter.

Hypothesis 3

H3: There is no significant relationship between profit maximization and ownership type.

Hypothesis 4

H4: PLCs are not less likely to profit maximize than non-PLCs.

Hypotheses three and four are the most relevant tests to consider when we attempt to review the managerial theories of the firm. Although the three managerial theories discussed here are not identical they are based around the same basic premise. That is, when the management of a firm is undertaken by professional managers, and not owners, the primary objective of the firm (managers) will not be a maximum level of profits.

If the models offered by Williamson (1964) and Marris (1964) are valid, and to a lesser extant Bamoul's (1959) sales revenue maximization model, then we would expect to be able to reject the null hypothesis, that there is no significant relationship between the decision to profit maximize and the ownership type of the firm. Indeed, to validate the managerial theories of the firm we expect there to be a significant relationship between the likelihood of a firm profit maximizing and the ownership status of the firm. Owner-controlled firms should

(according to the managerial theorists) be more likely to profit maximize than managerially-controlled firms.

We decided to further test the hypothesis that managerially-controlled firms will have a different propensity to profit maximize than owner-controlled firms by refining the hypothesis to test for a difference between PLC's and owner-controlled firms. The rational of this is to consider the extreme cases, a single owner of a firm compared with the large dispersed ownership of a PLC (we would expect the number of shareholders of a PLC to be larger than the number of shareholders in a non-PLC managerially-controlled firm e.g. a Private Limited Company). This is to overcome any issues concerning the definition of a managerially-controlled firm. If we accept that all firms listed on the main London Stock Exchange are managerially-controlled and compare these firms with firms that are owned and controlled by one person, there can be no doubt about the validity of the categorizations. The issues of ownership and control are dealt with in the following chapter.

Hypothesis 5

H5: There will be no relationship between firm size (employee) and profit maximization.

The fifth hypothesis has been constructed to test the behavioural theories of the firm (Simon 1955, Cyert and March 1963). As the number of employees within an organisation increases, then the complexity of the decision making process also increases, if we believe the underlying principles of the behavioural theories. This increasing number of employees results in an increasing number of coalitions being formed, and the increasing complexity of decision making results in "satisficing" behaviour being adopted at the expense of maximizing behaviour. Therefore, large complex firms are less likely to profit maximize than smaller, simpler organisations.

To validate the behavioural theories we would expect to find a negative relationship between the number of employees and the decision to profit maximize. As firms get larger they are more likely to demonstrate satisficing behaviour at the expense of maximizing behaviour.

Hypothesis 6

H6: There will be no relationship between a firm's level of corporate governance and profit maximizing behaviour.

The above hypothesis tests for a link between the level of corporate governance within a firm's management structure and the likelihood of the firm aiming to profit maximize. This original hypothesis attempts to link the traditional neoclassical theory of the firm with

the shareholder theory of corporate governance, where the shareholders as the owners of the firm should have the right to expect that the managers of a firm act in a manner to maximize the benefits that are returned to the shareholders for bearing risk. It is assumed that this will be best achieved through the maximization of profits.

The idea of a profit maximization theory linked to the level of corporate governance is attractive as, to a certain extent, it reconciles the difference between the neoclassical theory of the firm and the managerial theories. It accepts that not all firms profit maximize and the reason for this non-profit maximizing behaviour is the separation of ownership from control. Where this theoretical development differs from the managerial theories is in the latter's assumption that managers are motivated and, more importantly, able to act opportunistically in their own interests. It may be true that managers of managerially-controlled firms will increase their own utility by following a number of non-profit maximizing objectives, as suggested by the managerial theories of the firm. What is not definite is that the owners of these firms will allow the managers to maximize their own utility at the expense of their own utility. The extent to which the managers are allowed to act with their own best interest in mind is measured using the level of corporate governance as a proxy.

The shareholder approach to corporate governance is not the only approach to the idea of corporate governance; others have offered stakeholder theories. The Stakeholder Model (Freeman, 1984; Evan and Freeman, 1988; Blair, 1995) suggests that firms should aim to maximize stakeholders' wealth, and not only shareholders'. A stakeholder is any group or individual who can affect or be affected by the actions of the firm. This includes workers, local community, shareholders, customers, suppliers etc.

This suggests another original testable hypothesis, which is that stakeholder firms may not maximize profits, in any traditional sense, as they will be more interested in the well-being of all stakeholders and not just the shareholders. For example, wages and benefits given to the workforce may be higher than the minimum necessary to attract and retain suitably qualified individuals. These concepts were discussed more fully in the previous chapter of this study.

Hypothesis 7

H7: Shareholder firms are more likely to profit maximize than stakeholder firms.

We would expect shareholder firms to be more likely to aim to maximize their profits than stakeholder firms as these stakeholder firms will be interested in the utility of all interested parties and not just the owners and/or managers of the firm.

4.4 Conclusion

In the fourth chapter of this dissertation the different major paradigms of inquiry within the social sciences have been explained and evaluated. By identifying the weaknesses of previous similar research projects, combined with an understanding of the strengths and weakness of the competing paradigms of inquiry, it has been possible to identify the postpositivistic paradigm as the appropriate methodological base for this research. The detailed methods of data collection and analysis, which are explained in the following chapter, have been employed to work within the constraints of the chosen paradigm.

A number of hypotheses have been developed to test the theory of the firm and alternative theories of firm behaviour. These hypotheses are used to build the analyses section of this project on, and will allow conclusions to be drawn regarding the validity of the aforementioned theories.

Finally, two original hypotheses that link neoclassical theory of the firm with the theories of corporate governance have been constructed. These hypotheses will allow the testing of a new revised theory of the firm.

Chapter 5

Data Collection and Models

5.1 Introduction

The aim of this chapter is to describe in detail the data that was collected to test the hypotheses developed in the previous chapters. The rationale behind the various types of primary and secondary data collected and analysed during this study will be expounded in detail. In addition, the nature of the statistical analysis undertaken in Chapter Six is detailed and justified within this section of the study, along with a detailed explanation of each individual variable used for the econometric models employed. Finally, a detailed explanation of, and the rationale for, the semi-structured interviews has been set out.

5.2 Data Collection

We are interested in the objectives of firms. A firm can de defined as "A business partnership, or more generally any company or business" (Oxford International Dictionary of English, 2007). Throughout this research project the term "firm" has been used in a general manner to refer to any economic agent(s) producing goods or services to sell to other users. The population for the survey is all firms trading in the UK.

The postpositivistic paradigm of inquiry was identified, from the review of different paradigms of inquiry undertaken in the fourth chapter, as the most appropriate paradigm of inquiry in which to ground this reject project. Postpositivism combines the use of quantitative and qualitative data. This study will employ a combination of these quantitative and qualitative techniques. The results of the probit estimations have been combined with qualitative data gathered from a number of semi-structured interviews. By combining qualitative and quantitative data the result from this study will be both valid and reliable.

5.2.1 Quantitative Data Collection

The quantitative data used for the study was collected from three sources. A postal questionnaire was used to collect primary data that offered an insight into the behaviour of managers/owners of firms (Appendix A). The FAME database, which has detailed information on 2.8 million firms, was used to collect firm- and industry-specific data. The data collected from FAME includes firm size, number of employees, market share data and ownership data. Finally, the data from the first two sources was combined with corporate governance data collated from the FTSE ISS Corporate Governance Index.

5.2.2 Survey Data

A postal questionnaire was used to collect categorical data concerning the primary objectives of UK based firms. The FAME database was used to generate a stratified random sample of firms to survey. The responses to the survey allowed firms to be classified as: profit maximizing, sales revenue maximizing, a combination of sales and profits, and another objective not listed. This data was then used as information to define a latent dependent variable to be included in various binary probit models.

The population was split into two strata. The first group consisted of large managerially-controlled firms, where the owners (shareholders) do not directly manage the firm. This group was randomly sampled from the FAME database. The FAME database was used to generate a random sample of 900 firms from its list of publicly quoted firms (n=2199).

The second strata consisted of all firms listed on FAME that meet the requirement that one person owned more than 49.9% of the firm's shares. This means that one individual has a majority shareholding and will be able to directly control the firm's actions. The sample has not included any firm that is a subsidiary, i.e., where one firm owns 100% of another firm. It is not possible to determine how directly the owner (or majority owner) of any firm is actively involved in the management decisions that control the manner in which a firm will operate. To reduce the impact of this limitation, a question was included in the postal questionnaire to clarify if the owner directly controls the firm in question (see appendix A).

The use of postal surveys as a method for collecting empirical data in economics has been the subject of a number of criticisms (Machlup, 1946; Devine *et al.*, 1985). These problems are generally concerned with questionnaire design and interpretation. There is no scope to deal with any questions the respondents may have concerning the questionnaire and there is limited opportunity to test the validity of the response (Shipley, 1983).

A further limitation of postal surveys is the lack of responses to the questionnaire that might be gained: "There is no doubt the problem of non responses is central to the use of mail surveys." (Fowler, 1993; p 59).

A number of techniques and strategies have been used to limit these problems. A pilot study was undertaken to identify any problems and ambiguities in the questionnaire design, the results of which are reported later in this chapter (see section 5.5)

The survey was accompanied by a covering letter which explained the aims of the study and how to complete the questionnaire (appendix B). The questionnaire was written in non-technical language; where economics terms had to be used they were explained in simple terms. The questionnaire was kept small, with nine questions spread over two sheets of A4 paper. It was hoped that these factors would help the respondent to complete the questionnaire satisfactorily and also encourage them to respond.

Although postal surveys have limitations, they are the most appropriate method of data collection to use in this case. We are interested in business objectives, not performance. Therefore it would not be appropriate to look at firms' actual profits as these can be influenced by a large number of different variables. Instead, we wanted to explore what businessmen and managers set as their objectives. The only method of collecting this data was to ask the groups in question directly. The cost (time) of carrying out face-to-face interviews makes them prohibitive for all but the smallest sample size. In order to employ a number of quantitative techniques a (relatively) large sample is needed, and so the researcher cannot employ face-to-face interview techniques (for the main data collection). Telephone surveys are also problematic as it is likely to be more difficult to gain access to senior personnel within organisations by telephone.

Within the postpositivistic paradigm of enquiry the researcher is attempting to limit the problems with the positivistic approach. In both methodologies it is appropriate to use a large sample and aim for reliability of results. Where postpositivism differs from positivism is that an attempt is made to limit the lack of validity associated with the positivistic paradigm of enquiry. This lack of validity will be reduced by combining the quantitative methods with a number of interviews. The results of these interviews have been used to support (or refute) the results from the survey.

Taking into account the limitations of the alternative methods of data collection, a postal survey was the most appropriate method of data collection. It was relatively cheap and less time-consuming than the other methods. It was possible to post the survey to senior staff

within the chosen organisation (names and addresses were listed on the FAME database). The steps mentioned above have been taken to limit the problems associated with postal surveys, and as a consequence the postal questionnaire returned data that is adequate in terms of number and quality of responses (a response rate of 17.2% was achieved, see Chapter Six for further details).

There are a number of possible problems with surveys in general as a means of data collection. Jones groups these problems into two categories:

> "Survey errors fall into two general categories, roughly corresponding to errors of omission and errors of commission" (Fowler, 1993; p 177).

Errors of commission are caused by using a questionnaire with an inadequate design that fails to generate accurate answers to the questions that the research is designed to answer.

This set of limitations has been reduced by using the techniques listed above. Further to this, problems of commission were also limited by the understanding generated from the literature review (Chapter Two). The previous review of the literature identified a number of issues with the approach adopted and the questions asked. For example, Hall and Hitch (1939) and Lester (1946) used technical language and asked the respondents if they set marginal revenue to equal the marginal costs of production. The respondents did not understand these terms and therefore could not have fully understood the questionnaire. Other researchers (Shipley, 1983; Hornby, 1994) failed to pilot their questionnaire and as a consequence could not have been aware of any issue concerning the respondents misunderstanding of the questions. These issues were identified in Chapter Two and the methods to overcome these limitations have been set out in the previous sections of this chapter.

The second set of errors are errors of omission. That is, failure to question members of the population who have an influence on the survey, so that their omission leads to results that do not represent the whole population accurately.

There would be no errors of omission if the sample of subjects to be surveyed comprised the whole population, and all the subjects responded. As this is not possible, a number of techniques were employed in order to limit these problems.

These errors can be split into two main groups: is the population identified appropriate, and will the sample used from this population give a valid estimation of the relevant population characteristics? The sampling frame for the survey is all firms trading in the UK. The UK was chosen for convenience and there is no suggestion that results generated from the UK

data would be significantly different to results generated using data from other countries. The population from which the sample was taken consists of all firms listed on the FAME database which operate in the UK (2.8m).

The term 'sampling frame' refers to all members of the population from which the researcher would like to select a sample. A population is "any group that shares similar traits" (Black, 1999; p 111). The two important questions are, firstly, 'Is the sampling frame appropriate for the study?' and, secondly, 'Is the population appropriate?'. The aim of the study was to try to gain an understanding of the objectives of the people who own or manage firms. Therefore, a sampling frame that consists of all firms in the UK was appropriate. Although it would have been interesting to have surveyed managers/owners from other countries, no insight into the validity of the relevant theories would have been gained from this. The cost and technical difficultly (language barriers etc) meant that any such European (or world) survey was not practical.

It was not possible (due to time and cost) to use all firms that operate within the UK as the sample, as there is no database that records these figures. The Office of National Statistics records that there are 3.74m UK enterprises (www.ons.co.uk). The FAME database consists of 2.8 million of these firms. Although it would have been more accurate to have generated the sample from the whole sampling frame, the population (FAME) should, due to the large number of firms included in it, give a good representation of the sampling frame.

A sample may not give a good estimation of the population characteristic for two reasons. The sample may be biased; it may not represent the population. There could have been a flaw in the method used to generate the sample that may have led to the exclusion or over-reliance on a particular group or set of subjects. Secondly, the sample that is chosen could introduce new, unidentified variables that have an effect on the variable being measured by the sample. Blacks contends,

> "...Having defined populations consistent with the design, how does one obtain a sample that will not introduce new, previously unidentified, potentially confounding variables?" (Black, 1999; p 116)

This study used a random sample. A random sample can be defined as,

> " ...that method of drawing a portion (sample) of a population so that all possible samples of fixed size n have the same probability of being selected." (Kerlinger, 1986; p 44)

Although there is no guarantee that a random sample of a population will be representative, random sampling is the method most likely to generate a representative sample (Frankfort-Nachmias and Nachmias, 1992).

There are a number of different types of random sample that can be generated. A stratified random sample is appropriate if the population can be spilt into relevant, non-overlapping subgroups (strata). This will reduce the problem of non-responses from subgroups that are relevant to the research in question. An important issue to be considered is the relevance of the strata chosen.

> "It is important for the stratifying criterion to be relevant to the issue in which the researcher is interested; it should not be undertaken for its own sake." (Bryman and Cramer, 1990; p 102)

The stratifying criterion that was used to split the data into the two strata is relevant to the issue being researched; we split the sample into managerially-controlled firms and owner-controlled firms. One of the main aims of the study was to test managerial theories of the firm. These theories suggest that, due to the separation of ownership from control that exists in PLCs, business objectives will be different for managerially-controlled firms than for owner-controlled firms (Baumol, 1959; Williamson, 1964; and Marris, 1964).

The equal allocation method was employed. Under this method the sample sizes for each strata is equal, in this case 900 from each strata. It was hoped that a random stratified sample would produce results that were unbiased and represented the population characteristics accurately. The central limit theorem suggests that, as long as both the samples are taken from populations with normal distributions, then the large size of the samples should mean that the data gathered has a normal distribution (Swift and Piff, 2005).

5.2.3 Questionnaire Design

A number of advantages were to be gained from using closed choice questions. The time that the respondents needed to read and complete the questionnaire was minimized by using this type of question. There was little skill needed to answer the questionnaire. These factors, amongst others, helped us to achieve a response rate of 17.2%. It was also possible to directly compare the responses to closed questions in a manner that may not be possible with open questions. The nature of the questions made it possible for them to be used to

construct a number of variables that have been used in the probit estimations reported in Chapter Six.

1) What objective is of overriding importance to your firm?

   a) Maximizing profits.

   b) Maximizing sales revenue.

   c) A combination of high profits and high sales revenue.

   d) A different objective not listed.

The aim of the first question was to classify respondents as either profit maximizers or non-profit maximizers. This classification was used to define the dependent variable. This dependent variable was used in a number of binary probit models (the results of which are shown in the sixth chapter).

These classifications can also offer an insight into the validity of profit maximization, as a theory of the firm. If a majority of respondents claimed to be sales growth maximizers, then this would have offered support for the managerial theories of the firm (Baumol, 1959; Marris, 1964; Williamson, 1964) because these theories claimed that sales are more important than profits. If the respondents claimed to be aiming for a combination of profits and sales revenue, this would have offered support for the behavioural models of firm objectives (Simon, 1959; Cyert and March, 1963) because these behavioural theories have suggested that, due to a firm being a combination of different interest groups, firms are more likely to aim for a number of different objectives. Therefore firms will not maximize one single objective but will focus on a number of different objectives. If a majority of the firms surveyed claimed profit maximizing as their business objective, this would support the traditional theory of the firm.

One of the weaknesses of forced-choice questions is that there might not be a sufficient range of choices. De Vaus contends:

> "A major problem of forced-choice questions is that on some issues they can create a false opinion either by giving an insufficient range of alternatives or by prompting people with acceptable answers." (De Vaus 1991, p 86)

In this questionnaire a respondent could choose "A different objective not listed". This should limit the first problem of an insufficient range of choices. The respondents did

not have to choose a random response because their real views are not represented in the questionnaire. This option, "A different objective not listed", helped to reduce the impact of the second problem identified in the above quote, that respondents will pick an acceptable answer. Respondents will be able to pick option 'd' and they will not have to specify what objective is more important than profits or sales. This should prevent them choosing 'a' or 'b' because they feel they should.

A second question (2) was included in the questionnaire to further limit the problem of respondents claiming to profit maximize because they feel that it is the "correct" response.

2) Taking account of all relevant factors, including the reactions of your competitors, could you at present (if you wanted to) increase your profits by changing your prices?[1]

   a) Yes

   b) No

This question was used to test the validity of the respondents' replies to the first question. Any respondents who claimed profit maximization as their main objective could not, by definition, have increased their profits by changing the price they charged for their good or service. Therefore, if any respondent answered 'a' to question one and "Yes" to question two, then the respondent had misunderstood the question or the possible replies and could not be included in the main data analysis.

Why the respondents to a postal questionnaire would have felt pressured into picking a particular response is not entirely clear. Any respondent who did not feel that any of the choices offered as part of the first question were suitable would, presumably, have decided not to complete the questionnaire. The assumption suggested by other researchers (e.g. Shipley, 1983) that the owners or managers of firms may feel that claiming to profit maximize is the correct choice, is not obvious either. Is aiming to maximize profits considered an attractive goal in the twenty first-century?

As the survey was a stratified survey, with two strata, a hypothesis test was used to identify if there was a significant difference in the response from each strata. The theory of

[1]This question was first asked by Skinner (1970) and is used as a means for confirming that the respondents understand the first question. The other relevant factors could be any firm, industry or macro variables that may influence the pricing decision of a firm. It is not feasible to list these other factors as they are numerous and in practice would often be firm specific. More importantly it is not relevant to list the factors. The only relevant issue is whether or not the respondents can increase their profits by changing the price of the good in question.

profit maximization as developed by Marshall (1890) refers to all firms, whereas managerial and behavioural theories of the firm either explicitly (Williamson, 1964; Marris, 1964) or implicitly (Simon, 1955; Baumol, 1959) refer to large firms where there is a separation of ownership from control.

If there was no (significantly valid) difference in the responses from the two strata (owner-controlled = strata one, managerially-controlled = strata two), then this offers prima facie evidence that ownership structure is not relevant to business objectives. The results of this test are reported in the sixth chapter and interpreted in the seventh chapter.

In terms of adding support for any individual theory or group of theories we have to link the attributes of the two samples. To add support in favour of profit maximization: firstly, a majority of firms should have claimed profit maximization as the main objective for the business, and secondly, we would not expect there to be a significant difference between the two strata.

If a majority of firms claim not to be profit maximizers (any response to question one except 'a') we would then have to find a significant difference between the two sub-samples. Respondents from sub-sample two should have been more likely not to profit maximize than those from the first sub-sample, as all the alternative theories of the firm (managerial, behavioural etc) are based around the separation of ownership from control. These firms are less likely to be profit maximizers because they are controlled by managers, not by the owners.

The third question asked if the respondent owned and directly controlled the firm.

3) Do you own and directly control your own firm?

   a) Yes

   b) No

This question was used to enhance the validity of the sub-samples. The two strata split the data into managerially-controlled firms and owner-controlled firms (one shareholder owns more than 49.9% of the firm). The replies to this question have enabled us to classify each firm with more confidence, as it is possible to own all of the shares of a firm but to have no influence in the operations of the firm.

The fourth question asked if the firm operated with a minimum profit constraint.

4) Do you have a minimum profit constraint?

a) Yes

b) No

The use of a minimum profit constraint is explicit in both, Baumol's (1959) Revenue Maximization Hypothesis and Williamson's (1964) Managerial Discretion Model.

Questions five (a) and (b) looked at the time period and asked if the managers' objectives change over time.

5a) What are your short-run objectives?

a) Maximizing profits.

b) Maximizing sales revenue.

c) A combination of high profits and high sales revenue.

d) A different objective not listed.

5b) What are your long-run objectives?

a) Maximizing profits.

b) Maximizing sales revenue.

c) A combination of high profits and high sales revenue.

d) A different objective not listed.

The answers to these questions also helped us to interpret the answers to previous questions. For example, a firm may sales revenue maximize in the short-run to gain market share to maximize profits in the long-run. It may be that the behaviour witnessed by Baumol (1959), that managers refuse to shut down loss-making sections of a firm, is indeed true in the short run but in the long run the managers may indeed be willing to close down loss-making sections of a firm. This area has been investigated in more detail during the semi-structured interviews.

The time period may also have been significant in its own right. It is possible that firms do not have a consistent goal; the objectives of the managers or owners may change over time. A probit model was estimated with consistency of objectives over time as the dependent variable.

The sixth question asked the owners/managers of the firms surveyed if they aimed for a satisfactory level of profits, as opposed to a maximum level of profits.

6) Would you say that you aim for a satisfactory level of profits or a maximum level of profits?

a) Satisfactory

b) Maximum

"Satisficing" behaviour is predicted by the behavioural theories of the firm (Simon 1959, Cyert and March, 1963), where it is assumed that due to the complexity of large firms there will not be one overriding objective but a number of different objectives. Therefore, the persons controlling the firm will not attempt to maximize any of their objectives (profits, sales, utility of workers etc). Instead an amount that is acceptable to all parties will be aimed for. A satisfactory amount of profits would be enough to keep all parties content whilst not sacrificing a satisfactory level of other objectives. However, as discussed in the second chapter of this study, aiming for a satisfactory level of profits over a given time period is not mutually exclusive to having profit maximization as a business objective. It is possible that each year one could set an increasing satisfactory level of profits that would tend towards a maximum level.

A further three questions were asked to classify firms as either stakeholder firms or shareholder firms. The seventh question asked firms if they pay the minimum wage or above the minimum wage to their lowest paid members of staff.

7) Is the lowest paid member of your staff paid the minimum wage?

a) Yes

b) No

This question addresses whether or not rewards from the enterprise are distributed more equally among staff and, therefore, if the firm is acting in a manner more consistent with stakeholdership? Although it could be argued that firms pay above the minimum level of wages for a number of reasons (to attract staff, to hold onto staff, to motivate staff, *etc*) and that the outcome of this payment is intended to be higher profits for the firm's owners, this does not mean that the firm is not acting in a manner consistent with stakeholdership; it is not the owners motives that are relevant but the outcome. If firms are paying higher than the minimum wage this offers primia facie evidence that they are stakeholder firms.

The next question asked if the firms surveyed have a pension scheme, and if yes, whether all members of staff qualify to benefit from this pension scheme or is this entitlement limited to certain groups (e.g. managers or executives).

8) Are all members of staff eligible for company benefits (e.g. entry to pension schemes, bonus schemes and share options)?

   a) Yes

   b) No

It will be argued later in this thesis that if a firm only allows certain groups or parties within their organisation to participate in the pension scheme, then it is not a stakeholder firm because all employees are not being treated equally. This concept of a stakeholder firm was developed in the review of the corporate governance literature undertaken in the third chapter of this report.

The final question asked if firms offer support for their local communities, who represent various stakeholders.

9) Does your firm give financial support to the local community (e.g. sponsorship, charitable donations)?

   a) Yes

   b) No

It has been argued that if a firm only allows certain groups or parties within the organisation to benefit from a good level of performance, then it is not a stakeholder firm as all employees are not being treated equally (ceteris paribus).

Although the questionnaire contained a number of questions that offer an insight into business objectives, the main aim of the questionnaire was to construct a number of variables that were used in the probit estimations. Using the responses to the questionnaire, firms have been classified as profit maximizers or non profit maximizers. This classification was then used as the method for specifying the dependent variables (profit maximizers or non-profit maximizers).

This dependent variable was regressed against a number of independent variables that were constructed using the responses to the questionnaire (stakeholder/shareholder) or collected

from the FAME database (size, employee number, concentration ratio) or indeed by combining responses to the postal questionnaire and the information held on the FAME database (ownership type).

5.3 Econometric Analysis

Econometrics has been defined as "the application of mathematical statistics to economic data to lend empirical support to the models constructed by mathematical economics and to obtain numerical estimates" (Johnston, 1984; p 5).

Econometric analysis is traditionally used within the positivistic paradigm. With ever more researchers rejecting positivism in favour of postpositivism, it has become common to use econometrics within the postpositivistic paradigm of enquiry.

Racher and Robinson contend that the postpositive paradigm of enquiry is concerned with

> "...Explanation, prediction and control and involves making generalizations and cause-effect linkages. Knowledge may be gleaned through a variety of quantitative and qualitative research methods that may complement each other and move knowledge closer to truth, which can never be fully verified." (Racher and Robinson, 2002; p 468)

Therefore, when using postpositivism as a paradigm of inquiry it is appropriate to use econometrics to get explanations and make predictions from the data collected, so long as we accept that "truth can never be fully verified" (*ibid*). It is hoped that it is possible to get closer to the truth by combining some qualitative methods (interviews) with the econometric techniques employed in the study.

5.3.1 Justification for the Use of an Ordered Probit Model

There are a wide number of models that could have been used as a basis from which to run the regressions. However, due to the specific nature of the data collected in this research, the number of appropriate models was reduced.

The dependent variable (Y) was generated from the sampled data and it is a dichotomous variable (it can only take the value 0 or 1). The classical regression model assumes that the dependent variable is continuous (Thomas, 1997).

> "The dependent variable, however, is assumed to be continuous. Since there are no restrictions on the X_k's, the B_k's or the U's then Y_i must be free to take on any value from negative infinity to positive infinity." (Aldrich, 1984 p 12)

The dependent variable in this case was clearly not continuous. Therefore, it was not possible to use the classical regression model with the data that was collected.

However, it would have been possible to adapt the standard regression model to work with a dummy dependent variable, the resulting model is known as the Linear Probability Model (LPM) (Mirer, 1995).

$$Y_i = \beta_1 + \beta_2 X_i + \mu_i \tag{5.1}$$

where X is the independent variable, Y is a dichotomous dependent variable, β the parameters to be estimated, and μ the disturbance term.

Using OLS (Ordinary Least Squares) to calculate the LPM estimators would have led to a number of problems.

The use of the LPM would have resulted in non-normality of the disturbances μ_i. Ordinary least squares estimations do not require that the disturbances be normally distributed. However, normally distributed disturbance terms are required to undertake statistical inference tests. Using the LPM and OLS estimators, the disturbance terms would have been binomially distributed (Gujarati, 1995), and as a result standard statistical inference tests would be invalid. Although it would have been possible to deal with this problem using a weighted estimator to counter the non-normality (Goldberger, 1964), there are other problems that this method will not solve.[2]

Using the LPM model would result in disturbances with heteroscedastic variances. OLS assumes that the disturbance terms are homoscedastic (i.e. are all equal). The heteroscedastic variance means that the OLS estimators would not be efficient, as they do not have the minimum variance (they are unbiased). This problem can be overcome using a number of different techniques, e.g., weighted least squares. However, other more serious problems would still exist when using the LPM.

One of these problems is the non-fulfilment of the condition $0 \leq E(Y|X) \leq 1$. $E(Y|X)$ is used in the linear regression model to calculate the expected value of Y, given X. E must lie between the values of 0 and 1 (1 meaning it happens and 0 meaning it does not happen).

[2]Models such as (5.1) are called LPM since $E(Y_i|X_i)$, the conditional expectation of Y_i given X_i can be interpreted as the conditional probability the event will occur given X_i; that is, $P(Y_i = 1|X_i)$ (Gujarati,1995).

There is no guarantee that $\hat{y}$, the estimators of $E(Y|X)$, will take a value which meets this restriction (Gujarati, 1995). The probit model guarantees that the estimated probabilities will be between 0 and 1.

The LPM also limits the usefulness of R^2 (coefficient of determination) as a measure of goodness of fit. Given the above limitations, it was more appropriate to use a probit model. It would have been possible to use a logit model in place of the probit model, as they are very similar. All regressions were run using both models and the results are not statistically different. The results of the logit estimations are reported in appendix C.

5.3.2 The Probit Model

A probit model was used to examine the significant factors that influence firms' business objectives (profit maximization or non profit maximization). The results of the probit estimation are reported in the sixth chapter of this report and analyzed in the seventh chapter.

The dependant variable has been defined as taking the value of one for firms that claim profit maximization as their main business objective, and zero for firms that do not. The probit model estimated, with n observations is:

$$Y_i^* = \beta_1 + \beta_2 X_{2i} + \epsilon_i \qquad i = 1, 2, ...n, \tag{5.2}$$

where Y^* is an unobservable index of the likelihood of a firm profit maximizing. Therefore, instead of the linear probability model (5.1) we now have

$$E(Y^*) = \beta_1 + \beta_2 X_2, \tag{5.3}$$

where X_2 is an explanatory (independent) variable, in this case firm size. Other explanatory variables can then be added to the model.

The unobservable (dummy/fictitious) Y^* must be linked to the observable (dichotomous) variable D. This can be done by specifying

$$D_i = 1 \quad \text{for} \quad Y_i^* > 0$$
$$D_i = 0 \quad \text{for} \quad Y_i^* < 0$$

Zero is a threshold value for the Y_i^*. If Y_i^* is greater than zero then the firm is a profit

maximizer. The probability that $D = 1$ for the i^{th} firm is given by

$$\begin{aligned} P_i &= P(D_i = 1) = P(Y_i^* > 0) \\ &= P(\beta_1 + \beta_2 X_{2i} + \epsilon_i > 0) \\ &= P(\epsilon_i > -(\beta_1 + \beta_2 X_{2i})), \end{aligned} \tag{5.4}$$

using equation (5.2). If the distribution of ϵ_i is symmetrical with $E(\epsilon_i) = 0$ then

$$P(\epsilon_i > -(\beta_1 + \beta_2 X_{2i})) = P(\epsilon_i < \beta_1 + \beta_2 X_{2i}). \tag{5.5}$$

Therefore,

$$P_i = P(D_i = 1) = P(\epsilon_i < \beta_1 + \beta_2 X_{2i}) \tag{5.6}$$

If we assume a normal distribution for the ϵ_i's (Thomas, 1997), then the probability P_i can be computed from the cumulative density function (CDF). Let F be the CDF of the standard normal distribution, traditionally denoted by

$$F(X; \beta_1, \beta_2) = \int_{-\infty}^{\beta_1 + \beta_2 X_2} \frac{1}{\sqrt{2\pi}} \exp\left(\frac{-z^2}{2}\right) \mathrm{d}z \tag{5.7}$$

Notice that the range of F lies between 0 and 1. Since the ϵ_i's are normally distributed we now have:

$$P_i = P(D_i = 1) = P(Y_i^* > 0) = P(\epsilon_i < \beta_1 + \beta_2 X_{2i}) = F(X_{2i}; \beta_1, \beta_2) \tag{5.8}$$

Maximum likelihood estimators were used to estimate the regression parameters. Let $F(X_i; \beta_1, \beta_2) \equiv F(X_i)$ stand for the normal cumulative density function (CDF). Then the likelihood for dichotomous choice models is:

$$L = \prod_{i=1}^{n} \pi_i^{P_i} (1 - \pi_i)^{(1-P_i)} = \prod_{i=1}^{n} F(X_i)^{P_i} (1 - F(X_i))^{(1-P_i)} \tag{5.9}$$

We take the natural logarithm of this to get the log likelihood:

$$\ln L = \sum_{i=1}^{n} P_i \ln F(X_i) + (1 - P_i) \ln(1 - F(X_i)). \tag{5.10}$$

Finally, we can substitute in the probit cumulative density function $\Phi(X_i)$ and the probit model becomes:

$$\ln L = \sum_{i=1}^{n} P_i \ln \Phi(X_i) + (1 - P_i) \ln(1 - \Phi(X_i)). \tag{5.11}$$

The model to be estimated is represented by

$$\begin{aligned} Y_i^* = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \epsilon_i \\ \epsilon_i \sim N(0,1) \qquad i = 1, 2, ..., n \end{aligned} \tag{5.12}$$

Recalling that $D_i = 1$ if $Y_i^* > 0$ and $D_i = 0$ if $Y_i^* < 0$, it was possible to work out which of the dependent variables have a significant effect on the value of D, *i.e.*, on whether or not firms profit maximize.

The first independent variable (X_2) that was included in the model is the size of the firm (Fsize). The size of the firm was measured by turnover, given by amount of sales in the previous year, although there are a number of possible methods for measuring the size of a firm (number of employees, profit etc). The overall level of sales is the most appropriate measure to use here, as it is the traditional accounting method for measuring size. This measure of size was also used by Baumol (1959), Williamson (1964) and Marris (1964).

The size of the firm was also considered to have been relevant by behavioural theorists(Simon, 1959; Cyert and March, 1963). As firms become larger there is a growing number of relationships between different interest groups within the organisation. These different interest groups, e.g. managers, workers, departmental groups etc, have different objectives and therefore are unlikely to demonstrate maximizing behaviour and more likely to reach a compromise therefore displaying satisficing behaviour.

The second independent variable (X_3) represents the firm's ownership type. The survey was designed in a manner that allowed the data to be split into managerially-controlled firms and owner-controlled firms. Ownership type has been represented by an indicator variable (*own*) that takes the value of one when the firm is owner controlled, and zero when the firm is managerially controlled. Following the method developed earlier in the text, a firm where one shareholder owners more than 49% of the share of the firm (all firms in the second sample strata) and answers yes to question three of the survey (do you own and directly control your own firm?) was classified as owner-controlled. All firms within the first sample strata (listed on the main London stock exchange) have been classified as managerially controlled as they have to meet the various rules to this effect to gain their listing.

A PLC/non-PLC variable was used as an alternative to the ownership variable detailed above. This variable offered a more extreme measure of the ownership type of the firm. Here it was possible to compare small owner-controlled firms with large PLCs thus avoiding any possible concern over the validity of method used to categorize firms as owner controlled or managerially controlled.

The assumption that ownership type would be a significant variable and that it would have an influence on business objectives, is derived from the managerial theories of firm

behaviour (Baumol, 1959; Williamson, 1964 and Marris, 1964). These three models claim that due to the separation of ownership from control, firms will not profit maximize. The managers that control these firms will have a different set of objectives e.g. , sales, growth etc. Therefore ownership type should have an influence on business objectives.

The third independent variable (*employ*) used in the probit estimations is the number of workers employed by the firm. This data was collected from the FAME database. Behavioural theories suggest that as firms grow, different interest groups might have different objectives and as a consequence, satisficing behaviour may be used instead of maximizing behaviour. We expect the number of employees to be relevant. It is of interest to see if firm size measured by turnover is more significant to objectives than firm size measured by the number of employees. Most previous studies have used only one of these measures.

The fourth independent variable (CR-5) is a measure of the level of concentration within the markets that each firm operates in. This was constructed as a ratio of the size of the largest five firms within the industry to the size of the industry by sic code, therefore the value of the variable will increase towards 100% as the industry becomes more concentrated (oligopolistic). This information was generated using the FAME database. After the random sample was generated, each firm was allocated an industry by their sic code. It then became possible to work out the total size of the industry. This was achieved by adding together the turnover of all the firms listed on FAME within that industry. The turnover of the three/five largest firms within the sector could then be divided by this figure, giving a concentration ratio for each industry.

Although this calculation of the concentration ratio is not exact, as the FAME database does not include all firms in the UK, it should give an adequate proxy.

As well as using the five firm concentration ratios to measure the level of competition within an industry, it was also possible to construct a variable based on the Herfomdahl-Hirschman index. The market share of the firm was also used as an alternative to the concentration ration. It may be that this alternative measure offers a greater insight.

The industry concentration ratio has an influence on business objectives. Baumol (1959) contends that "big Businesses" which operate in an oligopolistic market structure are more likely to aim for sales (from his experience) than firms which operate in more competitive markets. Oligopolists are assumed to be more interested in maintaining their market share than in profit maximizing. Sweezy argued that firms in an oligopolistic market are likely to maintain their prices, so as to not lose market share, and therefore they are not interested

(necessarily) in profit maximization, but in keeping their market share (Sweezy, 1939).

An alternative view is that, due to the lack of competition that oligopolists face, they may be more likely to aim to profit maximize than firms that operate in markets with greater competition.

The fifth independent variable (SH/ST) is a second dummy variable which attempts to measure the firm's attitude towards its employees. Is the firm only interested in shareholders (owners are shareholders) or is it a stakeholder firm, where all employees have a chance to share in wealth created by the firm? Firms will be classified as a stakeholder firm, where the dummy variable will take the value zero, or a shareholder firm, where the dummy variable will take the value one. A stakeholder firm is an organisation where all members of the organisation benefit. It will be assumed that any respondent that answers yes to a majority of the relevant questions from the survey (questions seven, eight and nine) will be a stakeholder firm, otherwise the firm will not be classified as a shareholder firm.

There is no exact method available to measure if a firm is a stakeholder or shareholder firm. If all staff are not eligible for pension schemes and bonuses then it is difficult to argue that the firm is interested in all stakeholders and not just senior managers and shareholders. Although we accept the limitation of this definition, it is felt that it will give an adequate proxy.

This area has been developed and investigated in more detail during the semi-structured interviews, where it was possible to enter into detailed discussions with the managers/owners of the chosen firms to add validity to the results gained in the survey. However, this still remains a complex issue.

This variable may be relevant because a firm that is classified as a stakeholder firm may not place profit maximization as its main business objective. Other objectives may be more important, e.g. well-being of staff etc. Stakeholder theories of corporate governance (Freeman, 1984; Evan and Freeman, 1988; Blair, 1995) suggest that the managers of a firm should be interested in maximizing the utility of all stakeholders and not just the owners of the firm. Therefore, profit maximization may not be the aim because these profits would be returned to the owners of the firm at the expense of other stakeholders.

The final variable to be used in the probit estimations measures the level of corporate governance with the firm's management structure (CG). Data that measures the level of corporate governance in the publicly quoted firms has been collected from the FTSE ISS CG index. FTSE is a firm that is owned jointly between the London Stock Exchange

and the Financial Times. ISS is a private firm which was set up to supply information to shareholders of firms concerning the governance of publicly listed organisations. This index is accepted as being the leading indicator of the level of corporate governance within a PLC currently available in the UK. Further details concerning the corporate governance index have been explained in the following section.

Unfortunately, it was not possible to get a corporate governance rating for all firms within the sample. The FTSE ISS index does not cover all firms listed on the main London stock exchange. Therefore the probit model that includes the CG variable could only be estimated using a sample of 172.

Shareholder theories of corporate governance suggest that the managers of a firm should aim to maximize the returns to the firm's shareholders. Therefore, we may expect that firms with a high degree of corporate governance are more likely to aim to profit maximize, to maximize the value that can be returned to shareholders, than firms with a lower level of corporate governance (Manne, 1965; Jensen and Mecking, 1976; Charkham, 1994a, 1994bb; Hutton, 1995; Kay and Silberston, 1995).

5.3.3 Corporate Governance Data

The concept of corporate governance was explored in the third chapter of this work, where it was noted that in the UK the shareholder theories of corporate governance inform the current debate and regulatory system. Therefore, in order to measure the level of corporate governance within a firm's management structure, we have to consider the extent to which the management of the firm is likely to act in accordance with the desires of the shareholders and not for their own ends. The FTSE ISS index was constructed using this shareholder approach. The index considers sixty-three different measurements for each firm. These measurements are split into five distinct groups. These five groups are: compensation systems for executive and non-executive directors, executive and non-executive stock ownership, equity structure, structure and independence of the board, and independence and integrity of the audit process. For example, the index considers if the remuneration committee is composed entirely of independent members; if it is not then it considers what proportion of the board is composed of independent members. It is assumed that as the number of independent members increases the managers become more likely to be rewarded if they aim to maximize the value of shareholder returns rather than maximize their own utility e.g. by ego projects etc. The independent members have no incentive to reward the

managers of the firm for non-maximizing behaviour as they are not involved in the firm and cannot benefit from any such behaviour. Another variable used to calculate the index is the ratio of executive directors to non-executive directors. It is assumed that non-executive directors, who are not involved in the management of the firm, are more likely to consider the best interests of the shareholders than executive directors who are the senior management of the firm. In total sixty-three such items are rated; a full listing of the variables included is detailed in the appendix (C).

Each firm is awarded a mark from one to five for each of the five sections above. These marks are then aggregated and used as the basis of the index. A mark of 100 in the index represents the highest level of corporate governance attainable.

Firms that have been classified as owner controlled have been awarded a corporate governance rating of 100, the logic being that if you are the majority shareholder and you directly control the firm, then the will of the majority of the shareholders (you) must be carried out.

5.3.4 Model Selection

The model selection has been carried out using Hendry's top-down or general-to-specific approach. Using this approach one starts with several regressors and whittles them down to a model containing only important variables (Hendry, 1984). The choice of regressors should be informed by economic theory (Gujarati, 1995). The relevant economic theory has been reviewed in the second chapter of this thesis. We are interested in testing the validity of competing theories of the firm. Therefore the first model should be constructed using all the regressors that measure the validity of neoclassical, behavioural and managerial theories of the firm. Further to testing these theories, we are also interested in testing for a link between the likelihood of a firm profit maximizing and the level of corporate governance within that firm's management structures (see Chapter Three). The first model specified consists of six independent variables: owner, employ, fsize, CR-3, CR-5 and SH/ST. As we have already explained in the previous section of this chapter, each one of these variables has been constructed in order to test one or more of the theories under question.

The next step in the model selection process involves reducing the number of regressors to end up with a model that contains only important variables. However we need to adapt this process in order that it works with the methodology and methods that underpin this study. That is to say, we are not using time series analysis, with the aim of fully explaining what determines changes to the dependent variable. Rather we are using a binary probit

model to test if there is a link between the theory-determined dependent variable and the independent variables. As a consequence we are interested in variables that are not statistically significant, in terms of explaining changes in the dependent variable, as well as the ones that are statistically significant. We use the general-to-specific model selection process to arrive at the best regressors to include in our model when we are choosing between two regressors that measure the same variable.

The first model we estimated included all the theory-determined variables. We suspected the presence of multicollinearity between certain pairs of variables. After undertaking a correlation matrix (table 6.6) our suspicions are confirmed. A strong correlation exists between two pairs of variables: employ and fsize, CR3 and CR5. This is not surprising as in each case the two variables are measuring the same thing using a different method. We use Hendry's methods to choose which two, from the original four, to keep in the model.

Harvey (1990) suggests that there are two approaches to testing non-nested hypothesis. These are the discrimination approach and the discerning approach. The discrimination approach involves choosing a model based on some measure of goodness of fit and this method is appropriate for choosing between regressors that are attempting to measure the same underlying facts (Greene, 2005).

Therefore we estimate the model with and without each of the variables (table 6.5), and after reviewing the R^2 from the different models, we conclude that the final model should be estimated with the Employ and CR5 variables as this results in the highest R^2. A similar technical was employed to determine the specification of the corporate governance model (table 6.9). This regression had to been run separately as we only had corporate governance data for 172 firms, not the whole sample.

The regressors all meet the other criteria as set out by Hendry. That is, they are data admissible, consistent with the theory, and have weakly exogenous regressors.

Although we have adapted the traditional general-to-specific approach to work with our methods, we are confident the model selection process employed has resulted in a good model to test the data collected for this study.

5.4 Qualitative Data Collection

After the initial data collection and analysis was undertaken, five follow-up interviews were conducted in order to add validity to the results from the quantitative data (see chapters

six and seven). The participants for these interviews were identified during the original data collection process. Each respondent to the postal questionnaire was asked to indicate if they would be willing to take part in an interview. All the respondents who indicated that they would be willing to take part in an interview were contacted by letter (appendix D). Five from the twelve who responded positively at the questionnaire stage replied to the letter and these subjects were interviewed during October and November of last year (2005). A full break down of the characteristics of each of the interviewed participants is set out in the sixth chapter.

We accept that this self selection is not unbiased, that is to say that by allowing themselves to be interviewed these respondents have demonstrated that, in some respects, they are not representative of the whole sample. However, the five subjects who agreed to be interviewed represented firms with different characteristics, which at least means that all types of firms (in terms of ownership and size) were represented in these interviews. We also accept that the results from such a small number of interviews cannot be considered reliable. However, the aim of these interviews was to increase our understanding of the reality of the situation under investigation; that is, to try to understand what the interviewees understood by the questionnaire, and to understand what they actually meant when they answered each question. Therefore the interviews were intended to add validity to the (reliable) results gained from the questionnaire.

During these follow-up interviews a number of questions were asked (appendix E) to test the validity of the responses from the postal questionnaire. It was also possible to have detailed discussions concerning other topics of interest, for example, corporate governance.

The use of interviews is often linked with a constructivist methodology, where it is the interaction between the interviewer and the interviewee that generates an understanding of the issues under investigation. This interaction allows for more valid results and gives the interviewer a more detailed understanding of the respondent's understanding of the issues. Rather than ticking boxes on a questionnaire, there is discussion and this interaction allows the researcher to gain a greater understanding (Guba, 1990).

We decided to a use a semi-structured questionnaire, as opposed to open questions, because the use of semi-structured questions allowed for the answers to be directly compared between each interview. This allowed an overall review of the interviews to be constructed and used to add validity to the quantitative results. However, the use of semi-structured questions also allowed the respondents to offer their own opinion and for each interview to progress in

a unique manner. As was discussed during the fourth chapter, it is this unique interaction between the researcher and the respondent that allows for the formation of knowledge and understanding, and ultimately leads to more valid results being generated (Van Maanen, 1983).

5.4.1 Semi-Structured Interviews

1) What do you understand by the term profit maximization?

This question was asked in order to add some validity to the responses gained from the postal questionnaire. As the decision whether to profit maximize or not has been used as the dependent variable in the probit models estimated in the following sections of the thesis, and these probit models have been used as the main form of data analysis on which the conclusions of this study have been built, it is of paramount importance that the categorization of firms as either profit maximizers or non-profit maximizers is correct (or is as reliable as possible). Therefore it is important to gain some understanding of how the respondents to the postal questionnaire interpreted the term "profit maximization".

As was discussed in the fourth chapter of this dissertation, the use of interviews allows the interviewer to understand more fully how the interviewee understood the wording of the original question.

The firms' decision makers taking part in the interviews were classified as having no understanding of profit maximization, a Machlupian understanding or an exact understanding of the term. The definitions were developed from the review of the literature in the second chapter, where it became evident that different researchers had different views on how managers interpreted the term profit maximization. For example, Hornby (1994) interpreted profit maximization in an exact manner (see Chapter Two), where the decision makers within a firm attempt to (explicitly) maximize their profits. Alternatively, Machlup (1967) suggested that profit maximization is concerned with taking business decisions that increase profits. Finally, a number of authors (Hall and Hitch, 1939; Lester, 1946, 1947) have suggested that the decision makers within firms have no understanding of the concept of profit maximization.

By undertaking these detailed interviews it was possible to gain in depth knowledge and understanding of how the respondents interpreted the term profit maximization. This classification, detailed above, developed from the review of the literature, was then compared to the participant's responses to the questionnaire. This comparison will be used in the results

chapter of the thesis to review the validity of their original response to the questionnaire and then offer some insight into the validity of the rest of the data.

2) Is your firm interested in a combination of sales and profits?

3) How strongly do you think that profits and sales are linked?

The business decision makers who took part in the follow-up interviews were asked the above two questions in order to try to understand if they linked profits and sales.

The alternative theories of the firm described in Chapter Two suggest that the decision makers within firms are unlikely to aim for a maximum level of profits. Instead they are more likely to aim for a satisfactory level of profits, sales and various other business objectives (behavioural theories), or they may be interested in sales maximization with a profit constraint (managerial theories of the firm). It was hoped that the interview process would allow the respondents to offer a more detailed explanation of how they perceive the relationship between profits and sales.

It could also be argued that the managers of firms are likely to see profits and sales as being linked. If profits are made for each unit sold, then an increase in sales is going to result in an increase in profits. It is possible that the reason that the managers of firms appear to be interested in sales is that they assume that it will result in long-run profits. Also, managers of a firm may want to increase sales to gain market dominance in the short-run in order to maximize long-run profits.

Earl, (1995, p 193) when discussing why firms will not profit maximize contends, "Well-trained executives may debate hotly amongst themselves the wisdom of, for example, sacrificing short-run profits in the interest of a more secure long-run position for the firm."

The position forwarded above is not inconsistent with profit maximization. Indeed it may explain why a number of firms claim not to aim for a maximum level of profits. The managers may think that by aiming to maximize sales in the short-run or by increasing short-run investment they are not profit maximizing. However, if they make non-profit maximizing short-run decisions in order to achieve long-run profit maximization, then the firm should be classified as a profit maximizer.

We hoped that by asking these questions concerning the link between sales and profits, a more complete understanding of the issue may emerge. By giving the respondents an opportunity to consider these issues in more detail, a more valid understanding of the perceived relationship between sales and profits emerged from the interview process.

4) Are your long-run objectives the same as your short-run objectives?

Following on from the previous questions, the fourth question was intended to further explore the relationship between short-run and long-run business objectives, to add to our understanding of the issues.

5) Can you at present, taking into account all other factors, change the price of your products and increase your level of profits?

6) If yes to question five, why do you not do this?

The fifth question was a validity question that was included in the postal questionnaire and has been used by other researchers (Skinner, 1970). Obviously, if the director of a firm claims to be a profit maximizer then they should not be able to increase the price of their goods and increase profits. Therefore, we would expect all profit maximizers not to be able to increase profits by changing the price of their goods or services.

If this turned out to be the case then clearly there would be the need for further investigation. The sixth question attempted to understand the apparent ambiguity that some respondents claimed to be profit maximizing *and* to be able to increase their profits by changing their price.

7) Shareholders/Owners are the only group of people I consider when making business decisions.

The first six questions are primarily interested in adding validity to the original questionnaire. It was hoped that they would also offer some new insights into the issues under discussion, but that was a secondary function. The next set of questions worked in the opposite direction. That is, they offer some corroboration of the results from the questionnaire; however, the main purpose is to try to generate some understanding of the issues concerning corporate governance and the shareholder/stakeholder debate. We hoped that it would be possible to gain a greater understanding of how these issues are understood and their relevance to the managers of firms.

The seventh question was included to try to understand the difference between a shareholder firm and a stakeholder firm. The distinction between the two groups was developed from the corporate governance literature, which was discussed in the third chapter of this report. Corporate governance theories can be split into shareholder theories (Manne, 1965;

Jensen and Mecking, 1976; Charkham, 1994a, 1994b and 1989; Sykes, 1994) and stakeholder theories (Freeman, 1984; Evan and Freeman, 1988; Blair, 1995 Hutton, 1995; Kay and Silberston, 1995). Therefore following this categorisation firms have been classified (by their responses to the questionnaire) in the same manner. Whilst accepting the difficulty involved in this process, we hoped that the interviews would allow us to more fully explore the relationship between stakeholdership and shareholdership.

8) What other groups do you consider when making business decisions?

This question explores the concept of corporate governance. That is, are the managers of firms interested in their employees, the local community or just their shareholders? In fact are they even interested in their shareholders? We hoped that by discussing these issues in person a more detailed understanding of the respondents' thinking in these areas would be formed.

9) Do you have to consult/consider other shareholders' interests when you make business decisions?

By asking this question we hoped to form an understanding as to what extent managers considered themselves to be agents of the shareholders and to what extent they acted as if they owned the firm (even if they did not). Did these senior managers see their roles as implementing the shareholders' objectives or did they have their own set of objectives?

10) Do you own a majority of the shares in this firm?

The tenth question was another question intended to validate the responses to the original questionnaire and the data on the FAME database. That is, when someone claimed to own and control their firm in the questionnaire, was this the same answer that they gave during the interview and how did they interpret the original question in the first instance? For example, do you have to own a majority of the shares of a firm to classify yourself as the owner-controller? Do some senior decision makers classify themselves as the owner of a firm, even if they do not own a majority of the shares?

11) I am a good boss/manager so that my employees will work hard and make me more money/ look better.

The final question was an attempt to return the discussion to the stakeholder/shareholder issue and to explore this in more detail. Do the managers or owners of a firm offer perks

and benefits to their employees in order that they work harder to improve the managers' or owners' performance or are their motives more altruistic.

The results of these interviews are incorporated into the data analysis and discussions in chapters six and seven.

5.5 Conclusion

In the fifth chapter of the thesis a detailed explanation of the data collection and analysis techniques has been put forward. The use of a postal questionnaire has been explained and justified. The FAME database and the FTSE ISS CG index have been identified as the sources for the secondary data collected. A probit model has been identified as the most appropriate method to use in order to analyse the primary and secondary data collected. The specification of each variable to be included in the probit estimations has been defined, along with the rationale behind their inclusion in the model.

Finally, the nature of and the rationale for the use of semi-structured interviews has been outlined.

Chapter 6

Results

6.1 Introduction

In this section of the thesis the results from the various methods of data collection are presented. Within this study quantitative and qualitative data were combined. This data was used as the variables in a number of regression estimations. The results that are reported in this chapter will be used as the basis for the analysis chapter. In the seventh chapter these results are combined with the theoretical debate, undertaken in the second and third chapters, to test the various hypotheses developed in the fourth chapter.

In the first section of this chapter the data from the postal survey is presented, along with the firm-and industry-specific data collected from the FAME database. In the second part of this chapter the results of various binary probit models are displayed. Finally, the data gathered from a number of semi-structured interviews are introduced.

6.2 Results From the Postal Survey

The quantitative data for this study was collected from two main sources. Firstly, a structured questionnaire was sent to a random sample of UK Firms. Secondly, data for each respondent, to the original questionnaire, was gathered from the FAME database. The exact nature of the data collection methods employed for this study were detailed in the fifth chapter.

A random stratified sample of 1800 firms was generated from the FAME database. The FAME database contains detailed information on 2.8 million UK-based firms. The two strata identified were owner controlled firms (strata 1) and managerially-controlled firms (strata 2). Half of the 1800 questionnaires were sent to each group. The questionnaire gained a usable response rate of 17.2% (310)(table 6.1).

	Whole sample	Strata 1 (owner)	Strata 2 (manager)
No. of questionnaires	1800	900	900
No. of respondents	310	125	185
Percent of respondents by strata (%)		13.9	20.6
Percentage (%)	17.2	40.3	59.7

Table 6.1: Response rate by strata.

Type of firm	No. of employees	No. of firms	Percentage (%)
Micro	1 - 9	21	6.8
Small	10 - 49	29	9.4
Medium	50 - 249	94	30.3
Large	250 - 1000	93	30
Very Large	1000 - 5000	46	14.8
	> 5000	27	8.7

Table 6.2: The spread of firm size.

As identified in table 6.1 above, the response rate was larger for managerially-controlled firms than for owner-controlled firms. There is no reason why this should be the case and no reason why it would necessarily lead to biased findings.

The spread of the size of the firms whose directors responded to the questionnaire is presented in table 6.2 and figure 6.1. There would appear to be a reasonable spread of firms, in terms of the number of employees per firm.

6.2.1 Questionnaire Responses

1) What objective is of overriding importance to your firm?

   a) Maximizing profits.

   b) Maximizing sales revenue.

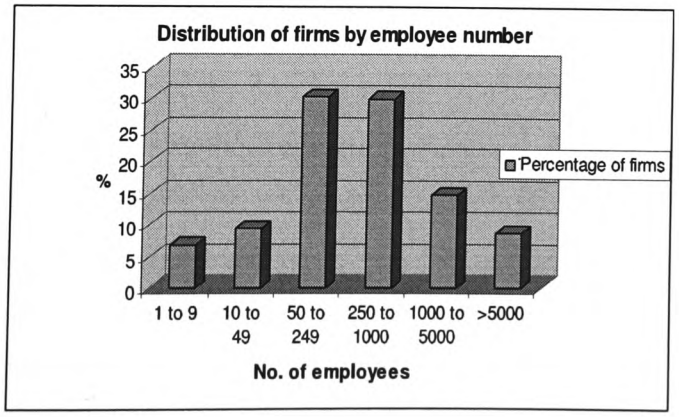

Figure 6.1: Distribution of firms by employee number.

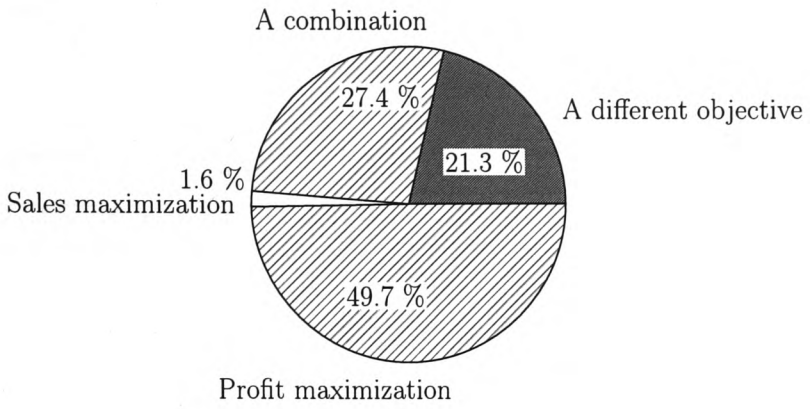

Figure 6.2: Responses to the first question from the postal questionnaire.

c) A combination of high profits and high sales revenue.

d) A different objective not listed.

The responses to the first question from the postal questionnaire are detailed in figure 6.2. A significant number of the respondents (49.7%) claim that maximizing profits is of overriding importance to their firm. Only a small number of firms (1.6%) claim to aim to maximize sales revenue. The remaining respondents are split between aiming for another objective not listed (21.3%) and a combination of sales and profits (27.4%). The results from question one were used as the dependent variable in the binary probit regression models.

The results from the whole questionnaire are displayed in table 6.3 (page 132).

6.2.2 Firm- and Industry-Specific Data

The FAME database was used to collect industry- and firm-specific data. The data sets collected from FAME were used as the independent variables in a number of probit models, the results of which have been detailed in this chapter.

The variables include the size of the firm (measured by the number of employees and the turnover of the firm) and the ownership status of the firm. A number of different measures of market concentration were also calculated (CR-3, CR-5, HH index, market share).

An indicator variable was constructed using some of the data collected from the postal questionnaire. This indicator variable (ST/SH) categorises the respondents as either a stakeholder or shareholder firm.

Finally, a variable that measures the level of corporate governance within the firms was constructed. The data for this variable was collected from the FTSE ISS Corporate Gov-

Questions	A %	B %	C %	D %
1) What objective is of overriding importance to your firm?	Maximizing Profits 49.7	Maximizing Sales Revenue 1.6	Combination of high profits and sales revenue 27.4	A different objective not listed 21.3
2) Taking account of all relevant factors, including the reactions of your competitors, could you at present (if you wanted to) increase your profits by changing your prices?	Yes 26.8	No 73.2		
3a) What are your short-run objectives?	Maximizing Profits 43.2	Maximizing Sales Revenue 4.5	Combination of high profits and sales revenue 25.8	A different objective not listed 26.5
3b) What are your long-run objectives?	Maximising Profits 42	Maximising Sales Revenue 0.3	Combination of high profits and sales revenue 31	A different objective not listed 26.7
4) Would you say that you aim for a satisfactory level of profits or a maximum level of profits?	Satisfactory 53.2	Maximum 46.8		
5) Do you own and directly control your own firm?	Yes 40.3	No 59.7		
6) Is there a minimum amount of profit that you feel the company has to make? *i.e.*, do you have a minimum profit constraint?	Yes 67.4	No 32.6		
7) Are any members of your staff paid the national minimum wage?	Yes 74.8	No 25.2		
8) Are all members of staff eligible for company benefits (*e.g.*, entry to pension schemes, bonus schemes and share options)?	Yes 61	No 39		
9) Does your firm give financial support to the local community (*e.g.* sponsorship, charitable donations)?	Yes 83.5	No 16.5		

Table 6.3: The questionnaire results.

Variable	Definition
Y	Indicator variable (dummy) taking the value of 1 if firm reports to be a profit maximizer and 0 otherwise
Fsize	Size of firm in terms of turnover (in 2004)
Owner	Dummy variable, taking the value of 1 if firm is owner-controlled and 0 otherwise (managerially-controlled). All firms classified as managerially-controlled have a listing on the London stock exchange (FTSE all share index)
Employ	Number of employees (in 2004)
CR3	Three firm concentration ratios
CR5	Five firm concentration ratios
SH	Dummy variable, taking the value of 1 if firm is classified as stakeholder and 0 otherwise (shareholder)
CG	Corporate governance score out of 100
Micro	Dummy variable, taking the value of 1 if firm is classified as a micro firm and 0 otherwise
Small	Dummy variable, taking the value of 1 if firm is classified as a small firm and 0 otherwise
Medium	Dummy variable, taking the value of 1 if firm is classified as a medium firm and 0 otherwise
Large	Dummy variable, taking the value of 1 if firm is classified as a large firm and 0 otherwise
Very Large	Dummy variable, taking the value of 1 if firm is classified as a very large firm and 0 otherwise
*Very Large (>5000)	Dummy variable, taking the value of 1 if firm is classified as a *very large firm and 0 otherwise
PLC	Dummy variable, taking the value of 1 if the firm is a PLC and 0 otherwise

Table 6.4: Variables used in the regression.

ernance Index. The methodology that underpins these variables was explained in the fifth chapter of this thesis.

A full list of the variables used in the regression results is presented below in table 6.4 (For the full data sets on each variable see appendix F).

6.3 Results From the Binary Probit Estimation

The results of the questionnaire were combined with the data collected from the FAME database and used as the variables to run a number of binary probit regressions.

The probit model to be estimated, with n observations is:

$$Y_i^* = \beta_1 + \beta_2 X_{2i} + \epsilon_i \qquad i = 1, 2, ...n, \tag{6.1}$$

where Y^* is an unobservable index of the likelihood of a firm profit maximizing.

$$E(Y^*) = \beta_1 + \beta_2 X_2, \tag{6.2}$$

where X_2 is an explanatory (independent) variable, in this case firm size. Other explanatory variables can then be added to the model. The unobservable (dummy/fictitious) Y^* must

be linked to the observable (dichotomous) variable D. This can be done by specifying

$$D_i = 1 \quad \text{for} \quad Y_i^* > 0$$
$$D_i = 0 \quad \text{for} \quad Y_i^* < 0.$$

Model 1

$$Y^* = \beta_0 + \beta_1(fsize)_i + \beta_2(owner)_i + \beta_3(employee)_i + \\ +\beta_4(CR5)_i + \beta_5(SH/ST)_i + \epsilon_i \qquad i = 1, 2, ...n \tag{6.3}$$

The p-values associated with the estimated value of the variables are, in all cases, greater than 0.05 or 0.10. This suggests that the null hypothesis, of there being no significant relationships between the dependent variable and any of the independent variables, cannot be rejected.

Due to the nature of certain variables, a strong correlation between certain pairs of variables was expected to exist. It was assumed that the Fsize variable was likely to be correlated with the employ variable as they are both measures of the size of the firm. The same is true for the CR-3 and CR-5 variables. Therefore, it is not appropriate to estimate the model with all the independent variables included.

A correlation matrix was constructed that confirmed the correlation between the Fsize variable and the employ variable. There was also a strong correlation between the CR3 variable and CR5 variable.[1] Due to the strong correlation between the two pairs of independent variables, which may cause the results of the regression to be spurious, it was was decided to run the estimations with the Fsize variable excluded and then with the employ variable excluded. Both these models are estimated with the CR5 variable only. There is no significant difference between using the CR3 measure of industrial concentration and the CR5 measure.

Model 2

$$Y^* = \beta_0 + \beta_1(owner)_i + \beta_2(emplyee)_i + \beta_3(CR5)_i \\ +\beta_4(SH/ST)_i + \epsilon_i \qquad i = 1, 2, ...n \tag{6.4}$$

[1]The ownership variable was replaced with a PLC/Non-PLC variable. This made no difference to the results. The CR-5 variable was replaced with CR-3, Market share and HH index. This made no difference to the results. All models were estimated using a Logit regression, which made no difference to the results. See appendix H for the full results

Variables			
	All Variables	Without Employ/	Without Fsize/
Constant	.011137	.023568	.023568
	(.0511)	(.12499)	(.1249)
	0.959	**0.901**	**0.901**
Fsize	-.2336E-7	-.6677E-7	...
	(.34547)	(-1.505)	
	0.730	**0.251**	
Owner	.093526	.10492	-.6677E-7
	(.62472)	(.70759)	(-1.1505)
	0.533	**0.480**	**0.251**
Employ	-.1112E-4	...	.10492
	(-.67021)		(.70759)
	0.503		**0.480**
CR5	.8291E-3	-.0017060	-.0017060
	(.037681)	(-.48350)	(-.48350)
	0.970	**0.629**	**0.629**
SH	.052813	.041427	.041427
	(.36064)	(.28825)	(.28825)
	0.719	**0.773**	**0.773**
Pseudo R^2	.0110-21	.010027	.010031
Log likelihood	-212.5011	-212.7147	-212.7147

Table 6.5: Probit results. Number of observations = 310, t-statistics are in parentheses and p-values are in bold.

	Y	Fsize	Owner	Employ	CR3	CR5	SH
Y	1.0000	-.0893	.0513	-.0901	-.0440	-.0478	.0256
Fsize	-.08936	1.0000	-.0255	**.8460**	.1053	.1250	-.0655
Owner	.0513	-.0255	1.0000	-.0881	-.1267	-.1448	.0935
Employ	-.0901	**.8460**	-.0881	1.0000	.1251	.1587	.0355
CR3	-.0440	.1053	-.1267	.1251	1.0000	**.9860**	-.0052
CR5	-.0478	.1250	-.1448	.1587	**.9860**	1.0000	-.0309
SH	.0256	-.0655	-.0935	-.0355	-.0052	-.0309	1.0000

Table 6.6: Correlation Matrix across all Variables.

The model (2) was then estimated without the fsize variable to correct for multicollinearity. No significant relationship between the dependent variable and any of the independent variables was found. However, it is worth noting that the p-value for the employee variables fell when the model was estimated without the fsize variable (0.730 to 0.251). This adds to the evidence that suggests that the two pairs of variables were strongly correlated (see table 6.6).

Model 3

$$Y^* = \beta_0 + \beta_1(owner)_i + \beta_2(fsize)_i + \beta_3(CR5)_i + \beta_4(SH/ST)_i + \epsilon_i \qquad i = 1, 2, ...n \tag{6.5}$$

The third model was estimated without the employ variable. There are no statistically significant relationships between the dependent variable and any of the independent variables.

The HH index was also used as a proxy for the level of competition within an industry and the overall market share of the firm was also included in a version of the model. Using these alternative measures made no significant difference to the results of the estimations (see Appendix G).

A number of other probit regressions were estimated. These models investigated the likelihood that the size of firm (measured by the turnover of the firm) may be significant. However, no relationship was found between the decision to profit maximize and the absolute size of the firm as measured by the number of employees or by the size of the firm sales. Nevertheless, a relationship between the decision to profit maximize and the general size of the firm (small, medium and large etc) might exist.

Model 4

$$Y^* = \beta_0 + \beta_1(micro)_i + \beta_2(small)_i + \beta_3(medium)_i + \beta_4(large)_i + \beta_5(very\ large)_i + \epsilon_i \qquad i = 1, 2, ...n \tag{6.6}$$

Model 5

$$Y^* = \beta_0 + \beta_1(small)_i + \beta_2(medium)_i + \beta_3(large)_i + \beta_4(very\ large)_i + \beta_5(very\ large^*)_i + \epsilon_i \qquad i = 1, 2, ...n \tag{6.7}$$

Independent variables					
Micro	Small	Medium	Large	Very large	Very Large*
41106	0.055108	0.33075	0.27529	0.027964	-0.49197
(1.1776)	(0.19601)	(1.3779)	(1.1299)	(0.10223)	(-1.4448)
0.240	**0.845**	**0.169**	**0.259**	**0.919**	**0.150**
Pseudo-R^2	= .0092793				
log-likelihood	= −212.8753				

Table 6.7: Probit results: firm size by grouping. Number of observations = 310, t-statistics are in parentheses and p-values are in bold.

The results generated from the use of a factorial variable for size are shown in table 6.7. There are no statistically significant relationships between the size of the firm and the decision to profit maximizes.

A number of probit models were estimated with an alternative dependent variable. These alternative models were used to test for a statistically significant relationship between the dependent variables and a range of independent variables. The dependent variables used included whether the firms surveyed aimed for a maximum or a satisfactory amount of profits, if they had a minimum profit constraint and if they had different objectives in the long-run than in the short-run.

As can been seen from table 6.8, there is a statistically significant relationship between a firm having different long-run and short-run objectives and the ownership type of the firm. That is to say that an owner-controlled firm is more likely to have different long-run and short-run objectives than a managerially-controlled firm. Shareholder firms are also more likely to have different objectives over time.

A final probit model was estimated to test for a link between the likelihood of a firm aiming to profit maximize and the level of corporate governance within the firm's management structures. Following several iterations, the estimation method converged into the following model:

Model 6

$$Y^* = \beta_0 + \beta_1(fsize)_i + \beta_2(employ)_i + \beta_3(owner)_i + \beta_4(SH)_i + \beta_5(GC)_i + \epsilon_i \qquad i = 1, 2, ...n \tag{6.8}$$

The data (Table 6.9) suggested a significantly significant, positive, relationship between a

Dependent variable	Maximum/ Satisfactory profits	Minimum profit constraint	Different SR and LR objectives
Constant	0.06021	0.28859	-0.83898
	(-0.224406)	(1.1562)	(-3.2763)
	0.823	**0.249**	**0.001**
Profit Max	...	0.12275	0.096789
		(0.58147)	(0.45797)
		0.562	**0.648**
Fsize	0.7815E-7	0.5779E-6	0.4490E-7
	(0.70279)	(0.98118)	(-0.69518)
	0.483	**0.328**	**0.488**
Owner	0.36514	0.031145	0.49999
	(1.6153)	(0.13439)	(2.1951)
	0.108	**0.893**	**0.030***
Employ	-0.36514E-5	-0.4496E-4	0.1623E-4
	(-0.47962)	(-0.64175)	(1.264)
	0.632	**0.522**	**0.208**
CR5	0.0010592	0.0012035	0.0040642
	(0.19697)	(1.9973)	(0.6844)
	0.844	**0.842**	**0.495**
SH	-0.10735	-0.13769	-0.46686
	(-0.40340)	(-0.49696)	(1.760)
	0.687	**0.620**	**0.080**
Pseudo R^2	0.052106	0.029248	0.058358
Log likelihood	-103.5881	-98.2457	-97.1388

Table 6.8: Probit results with alternative dependent variables. Number of observations = 310, t-statistics are in parentheses and p-values are in bold.

Variables			
	All Variables	Without Employ	Without Fsize
Constant	-3.0484 (-1.9068)	-3.0681 (-1.9205)	-3.0890 (-1.9375)
Fsize	-.2973E-6 (-0.72356)	-.2045E-6* (-1.6743)	...
Owner	-0.51061 (-1.3997)	-0.51298 (-1.4065)	-0.49882 (-1.3870)
Employ	.1170E-4 (.23755)	...	-.2479E-4* (-1.8473)
SH	-.0066887 (-0.032979)	-.0069450 (-0.035294)	-.0036822 (-.08779)
CG	.037560* (2.0083)	.037764* (2.0206)	.037766* (2.0284)
Pseudo R^2	.042331	.042086	.042331
Log likelihood	-113.7733	-118.8024	-113.7733

Table 6.9: Probit Maximum likelihood estimations. Number of observations = 172, t-statistics are in parentheses.

firm's decision to profit maximize and the level of corporate governance within the firm's management structure. This implies that firms which operate with a management structure that displays a high level of corporate governance are more likely to aim for a maximum level of profits, compared with firms that demonstrate a relatively low level of corporate governance.

6.4 Follow-up Interviews

Five semi-structured, face-to-face, interviews were conducted in order to add validity to the results generated from the original data collection. Respondents to the postal questionnaire were asked to indicate if they would be willing to participate in a follow-up interview. Five respondents were chosen from the ten positive responses to the request for a follow-up interview. The firms that these managers/owners represented differed significantly. The firms ranged from a small owner-controlled firm with one employee to a major FTSE 100 firm. The three other firms were small-to-medium sized firms,one being a partnership, the other two being private limited.

Although such a small number of firms cannot be claimed to be totally representative and the process of choosing the firms was not random, the fact that these firms represent both the largest and smallest firms with the population and sampling frame (roughly) and also represent the "average firm" suggests that an adequate range of UK firms have indeed been covered by the follow-up interviews.

6.4.1 Interviewees' Characteristics

Respondent A

The first subject who agreed to be interviewed was the owner-controller of a medium-sized firm. The firm had 120 employees and turnover was just over 12.6 million. The firm operated in an oligopolistic market (CR5 = 91.6%). The firm was classified as a non-profit maximizer. The firm was also classified as a stakeholder firm.

Respondent B

Respondent B was the finance director of a medium-sized, managerially-controlled firm. The firm had a turnover of 12.2 million and employed 170 staff. The firm operated in an oligopolistic market (CR-5 75%). The firm was classified as a non-profit maximizer, and as a shareholder firm.

Respondent C

The third person who took part in the interviews was the owner-controller of a small firm. The firm employed one member of staff and had a turnover of 250,000. The firm operated in a competitive environment (CR-5=16%). The firm was classified as a non-profit maximizer. The firm was classed as a stakeholder firm.

Respondent D

The fourth participant in the interviews was the owner-controller of a medium-sized firm, that employed 137 members of staff and had a turnover of 22.7 million. The firm operated in a market where the largest five firms accounted for 57% of total sales. The firm was classified as a profit maximizer and as a stakeholder firm.

Respondent E

The final interviewee was a director of a large PLC. The firm had a turnover of 5.6 billion and employed 12,747 members of staff. The market in which the firm operated had a concentration ratio of 48.9% (CR-5). The firm was classified as a profit maximizer and as a stakeholder firm.

At the start of each interview it was possible to ask a number of questions (not included in the semi-structured questionnaire) to verify the data collected on each firm from the FAME database. Each interviewee was asked to confirm the number of employees, sales and the level of competition each firm faced. All the replies (roughly) corresponded with the information supplied by the fame database.

6.4.2 Interview Results.

The results from the five interviews are set out in table 6.10 below. The results have not been interpreted in this section, only recorded. These results are analysed, along with the results of the quantitative data, in the following chapter of this thesis.

6.5 Conclusion

In this chapter of the thesis the data collected from the various types of data collection methods employed, has been set out and explained. In the chapter that follows, an analysis of this data is conducted. It will then be possible to combine the results of the data analysis and the theoretical interpretations from the previous chapters and form some conclusions concerning the validity of the theory of the firm and alternative theories of firm behaviour.

Question	A	B	C
1) What do you understand by the term profit maximization?	Machlupian Interpretation 3	Exact quantitative Interpretation 2	Respondents did not understand the term 0
2) Is your firm interested in a combination of sales and profits?	YES 3	No 2	
3) How strongly do you think profits and sales are linked? (5 = very strong, 1 = not at all) Choice: 1 2 3 4 5 No. Res: 0 0 ii iii 0 Average = 3.6			
4) Are your long run objectives the same as your short-run objectives?	Yes 1	No 4	
5) Can you, at present, taking into account all other factors, change you price and increase your profit?	Yes 1	No 4	
6) If yes to Q5, why do you not do this? The respondent indicated that this would only be possible in the short run and there was no point in increasing prices as in the long run there would be no increase in profits as they would lose customers to rival firms.			
7) Shareholders/owners are the only group of people I consider when making business decisions (5 = very strong, 1= not at all) Choice: 1 2 3 4 5 No. Res: 0 0 i iii i Average = 4			
8) What other groups do you consider when making business decisions?	Employees 3	Local community 1	Others institutional shareholders
9) Do you consult /consider other shareholders' interest when you make business decisions?	No 2	Yes , I consult but I make decisions 1	Yes 2
10) Do you own a majority of shares in this firm	Yes 2	No 3	
11) I am a good boss/manager so that my employees will work hard and make more money/look better (5= very strongly, 1= strongly disagree) Choice: 1 2 3 4 5 No. Res: i 0 ii ii 0 Average = 3			

Table 6.10: Face-to-face interview results.

It will also be possible test the hypothesis developed in Chapter Three, that the relevant factor in alternative theories of firm behaviour should be the level of corporate governance and not the ownership structure of the firm.

Chapter 7

Discussion and Interpretation of the Results

7.1 Introduction

In this section of the thesis the results reported in chapter six are analysed and interpreted. These results are then combined with the theoretical discussion from chapters two and three. From the results of these tests, along with the theoretical discussion, conclusions will be drawn regarding the validity of neoclassical, managerial and behavioural theories of the firm. Finally, the results from the data collection and analysis will allow us to offer a new, refined theory of the firm.

The rest of this chapter is structured as follows. In the first section of this chapter the aims and objectives of the study are explained. This allows us to adequately gauge to what extent these aims and objectives were met in the preceding discussion. In the second section the neoclassical theory of the firm is discussed and evaluated from an empirical and theoretical perspective. Managerial, behavioural and other alternative theories of the firm are then reviewed from an empirical and theoretical view. This allows us to conclude that none of the alternative theories can be considered as offering an adequate theory of the behaviour of the average or representative firm in the UK.

Neoclassical theory of the firm is combined with the concept of corporate governance and used to form a theory of firm behaviour that, whilst being based on the concept of profit maximization, accepts that not all firms will profit maximize. This new theory of the firm is also applicable to all firms, regardless of their size, ownership structure or any other individual, market or industry level constraint.

A self-critical analysis of the research methods is also included in this chapter of the thesis, where the weakness and limitations of the approach employed are acknowledged.

Finally, the implications of the research results are briefly outlined and suggestions are made regarding possible directions of future research studying the theory of the firm.

7.1.1 Aims and Objectives

At this juncture in the report it is useful to recap on the original objectives and reasons for undertaking this research project.

The aim of this study, as set out in the opening chapter, was to test the validity of the theory of the firm and alternative theories of firm behaviour. The reason for under-taking such a task is simply that the traditional neoclassical theory of the firm has come under continued attack for the past seventy years, yet none of the alternative theories forwarded to replace the theory of the firm have gained wide acceptance within the field of economics.

In this thesis the aim was to test the validity of neoclassical, managerial, behavioural and other alternative theories of the firm. To achieve this aim the study combined original data and data analysis methods with the existing theory and previously undertaken research to draw conclusions on the validity of these competing theories of the behaviour of firms.

Although the evidence gathered within this project cannot offer strong evidence in favour of any of the alternative theories of the firm, it does add to the existing evidence that suggests that profit maximization is still the dominant single objective pursued by the average or representative firm. Furthermore, while writing this study it has been possible to formulate a new hypothesis which explains why some firms do profit maximize and why others do not. The hypothesis offered here is that it is not, as previously suggested, the percentage of shares held by any one individual, the overall ownership structure, the size of the firm, or indeed any firm, market or industry-specific variable that determines if a firm will aim to maximize its profits. The relevant factor is the level of corporate governance within the firm's management structure. Regardless of any other variable, a firm with a high degree of corporate governance is more likely to aim for a maximum level of profits than a firm with a lower level of corporate governance.

7.2 Do Firms Aim For a Maximum Level of Profit?

Under the neoclassical framework it was assumed that the manager or owner of a firm would aim for a maximum level of profit. The meaning of the term profit maximization and what it implies for the decision making within a firm was expounded in the second and third chapter of this study. The evidence presented in these chapters suggests that profit maximization

does not mean that firms set their marginal costs to equal their marginal revenue. Indeed, we can safely assume that most managers/owners of firms do not know what their marginal costs or revenue are, never mind how to calculate their current level. The interpretations being tested and forwarded in this thesis are those expressed by Machlup, that a firm is a profit maximizer if the managers of the firm take decisions based on increasing their profit. Machlup contends that "The marginal analysis of the firm should not be understood to imply anything but subjective estimates, guess and hunches..." (Machlup, 1946; p525). The term profit maximization simply means that businessmen take decisions that ex-ante they think will increase their profit, although ex-post these extra profits may not be realised. Many authors confuse the interpretation of the aim to profit maximize. When trying to construct a set of simple, predictive laws of economics it is necessary to constrain the actions of the decision makers. This has been achieved within economic theory by assuming maximizing (minimizing) behaviour. If businessmen aim to increase their profits then the logical end point is one where profits are maximized. When we move from the abstract theory of profit maximization into the real world where profit maximization is a business objective, all the term "profit maximization" implies is that businessmen take decisions that they think will increase their profits, not decrease them. They do not have to know how to achieve an absolute maximum level of profits, they merely have to act so as to increase their profits.

In order to test the premise that firms aim for a maximum level of profits, a postal questionnaire was used to survey owner/managers of firms on this issue. The results of which were reported in the previous chapter (Chapter Six). 49.7% (154) of those who responded to the questionnaire indicated that they aimed for a maximum level of profits.

These results are broadly consistent with findings in previous studies. Skinner (1970) and Shipley (1983), for example, report that 52% and 47.7% of their respective respondents pointed to profit maximization as the overriding objective of the business. The studies by Jobber and Hooley (1987) and Hornby (1994) provide similar findings (see Figure 7.1).

If the results of previous studies are aggregated then overall the percentage of respondents to the surveys claiming to profit maximize is 42.5%; this is close to the 49.7% that has been reported from this survey. It is clear from these results that a significant proportion of businessmen claim to be interested in maximizing their profits.

It became common practice to assume that questions that ask respondents to choose their overriding business objective are likely to lead to owners or managers claiming to profit maximize when they do not actually do this. However, no evidence has been supplied to

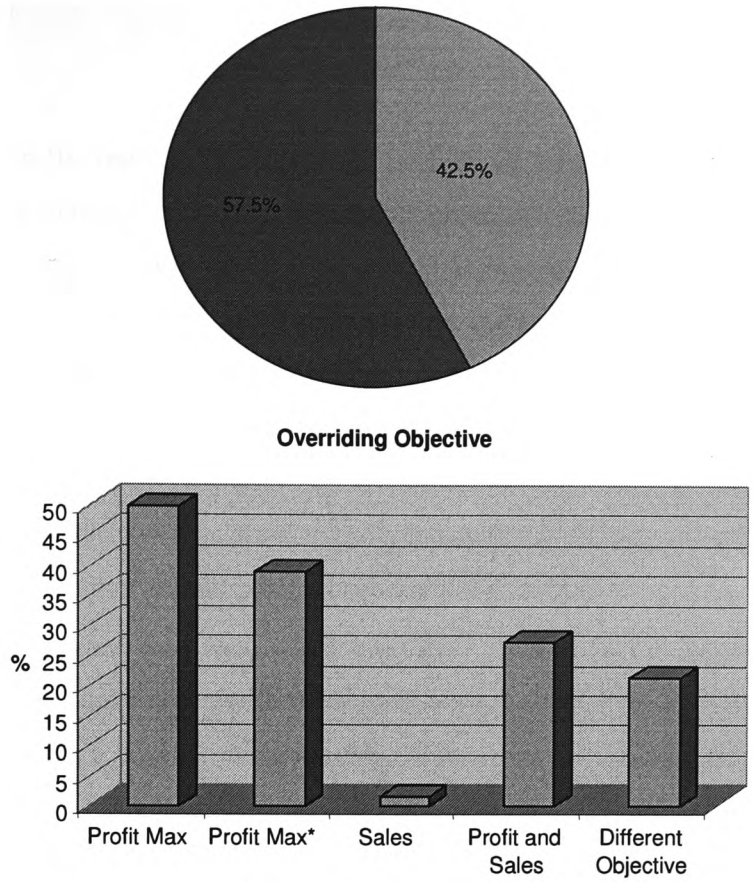

Figure 7.2: Summary of overriding objectives from this survey.

justify why this might be the case. Notwithstanding the lack of evidence to support this hypothesis, it has become the norm to ask a second question concerning profit maximization to correct for this assumed bias. Therefore, following on from the previous studies listed above, a second question was included in this survey to help to validate the responses.

The validating question asked was "Taking account of all relevant factors, including the reaction of your competitors, could you at present (if you wanted to) increase your profits by changing your prices?"

If we define a profit maximizing firm as a firm whose owners/managers claim to aim for a maximum level of profit and who answer "no" to question 2, then the percentage of profit maximizing firms in the sample falls from 49% to 39% (see Figure 7.2).

No matter what definition of profit maximization is used, profit maximization remains the dominant choice of business objective according to the respondents to the postal questionnaire. It is worth noting that very few firms (1.6%) claim to be interested in maximizing their sales as an overriding objective, although a significant proportion of firms are interested in a combination of sales and profit or a different objective. This would suggest that when firms do have an identifiable single objective it is likely to be to maximize profits.

To add validity to the results gained from the postal questionnaire it was decided to undertake a number of semi-structured interviews. As previously discussed in chapters four and five the use of interviews allows for knowledge to be understood through the interaction of the interviewer and interviewee. This process gives the interviewer a fuller understanding of how each interviewee interpreted the original questions, and what they meant by the responses they gave to the questions. Five managers/owners of firms took part in these interviews. The characteristics of each of the subjects who took part in the interviews were detailed in the previous chapter, along with the responses they gave to the pre-determined questions i.e. the replies from the semi-structured questionnaire.)

Amongst other questions they were asked what they understood by the term profit maximization. They were split into one of three groups depending on their reply. These groups are: Machlupian, exact, and no understanding. The grouping corresponds to the interviewees understanding of the term profit maximization.

If the participant in the interview did not understand the term profit maximization they were classed as having no understanding. If the owner or manager being questioned interpreted the term profit maximization in an exact numerical manner i.e. , maximizing the difference between costs and revenue, over a given period of time), they were classified into the "exact" grouping. Finally, respondents who understood profit maximization to mean that firms make major decisions with the aim of increasing their profits were grouped as having a Machlupian understanding of the term. That is to say that they interpreted the term profit maximization as being a business objective and not as a pricing tactic.

All five participants fell into the latter two categories and therefore they did understand the term profit maximization. Therefore the assumption made by previous researchers (Skinner, 1970; Shipley, 1983 and Hornby, 1994) that the owners or managers of businesses are unlikely to understand what economists mean by the term profit maximization is not supported by the results of these interviews. Indeed, all the respondents had a good understanding of the term.

The first interviewee (respondent A) replied, when asked what he understood by the term profit maximization "...[we] maximize our margins...keep prices high and costs to a minimum." This demonstrates a clear understanding of profit maximization. Where the subject was referring to maximizing margins, that is the difference between the price of a good and the costs of making that good. Although this differs from the traditional marginalist approach of equating marginal revenue with marginal costs, it still demonstrates a clear and

exact interpretation of the concept of profit maximization; it can be likened to maximizing your total revenue whilst minimizing your costs. The respondent continued that "[the] price can't be too high or you would lose sales". This statement clearly demonstrates that respondent A was referring to maximizing total revenue when he referred to keeping prices high.

The second subject interviewed also demonstrated a clear understanding of the term profit maximization:

> "Retained profits available to shareholders, that's what you would maximize, to maximize profits."

Although respondent B did not demonstrate a detailed understanding of how to achieve a maximum level of profits, he still demonstrated an understanding of the concept. Indeed, as he was the finance director of a managerially-controlled firm (see Chapter Six) it is appropriate that 'maximizing profits available to shareholders' should be part of his definition. Further to this, respondent B contented, "We think we can get 20% on price as profit, but we've got a long way to go... but that is not the maximum, as things change. I do not think you can ever reach an absolute maximum."

This suggests that the firm in question had a figure in mind that was currently the highest attainable profit (as a percentage of sales), although the respondent accepted that this may increase (or decrease) over time. This also suggests a clear and exact (in terms of the categorisation developed in Chapter Six) understanding of the term profit maximization.

The results of the interviews suggest that the first two respondents understood the concept of profit maximization in an exact manner, that is they appeared to link it to actual firm performance and price, as opposed to interpreting it as a business objective. It is worth noting that neither of these two interviewees classified themselves as profit maximizers. Nevertheless, they appear to have had a good understanding of the term.

The third person (respondent C) to participate in the interview process suggested that maximizing profits meant "... make the most profit that we can." The respondent continued that "... you make decisions based on increasing profits." As with the first two respondents, respondent C was a non-profit maximizer but appeared to have a reasonable understanding of profit maximization as a business objective or as what we have termed a Machlupian understanding (where one takes major decisions based on increasing profits).

Respondent D also appears to have interpreted profit maximization as a business objective:

"... a firm can deliver a certain level of income on a 9 to 5 basis that is sustainable... you need to find the maximum that is sustainable with a good quality of life ... that's maximizing profits."

Cleary this respondent understood that maximizing profits is not about working longer hours etc., but rather it is about making decisions that increase your profit and move you towards the most profit that the firm can make. This fits in with profit maximization as a business objective. Major decisions are made with a view to increasing profits. The concept of profit maximization as a business objective was discussed in the third chapter of the thesis.

The final person to be interviewed (respondent E) suggested that maximizing profit meant "... earning enough money to satisfy shareholders demands in a PLC."

He continued,

"... we pay attention to our largest shareholders who are well informed and understand how much profit we should make." (Respondent E)

Respondent E, is the director of a large PLC (see Chapter Six for further details) and this may have influenced his opinion. During the second quote he is referring to institutional investors and suggesting that they have an understanding of how much profit a firm should be making, and that he has to attain this level of profit.

The owners/managers in question were also asked if they could increase their profit by changing the price of their products. Four out of five indicated that they could not. The respondent who indicated otherwise went on to clarify his remark.

"Although there is a limit to how long you can keep them high, at some point you're going to lose customers" Respondent A.

He suggested that the prices charged by his firm could be increased in the short-run and that this would increase profits. He concluded that this action would lead to lower profit in the long-run as customers switched to rival firms. This point was also made by another two of the interviewees. Clearly the time period is a relevant factor influencing owner's/manager's responses to this type of question. This may explain why some respondents to the postal questionnaire claim to profit maximize and be able to change prices and increase profits. They may be able to charge a higher price in the short-run and temporarily increase their

profits, although in reality they are operating at their long-run profit maximizing point. Therefore, if they continue with this higher price they will lose sales and profits will fall below their previous level.

Notwithstanding the issue discussed above, the results of this study suggest strongly that more owners/managers aim for a maximum level of profits as their overriding business objective, than any other objective (see figure 7.2).

Although "profit maximization" is clearly chosen by more respondents than any other option, a significant number of owners/managers do not aim for a maximum level of profits. There have been a number of theories offered to explain why some firms may not profit maximize.

7.3 Managerial Theories of the Firm

During this section of the analysis and discussion chapter the theories of the firm referred to as managerial theories will be evaluated. Although the three theories we have classified by this term are similar, they are not homogeneous and as a consequence of these differences each theory will be tested individually and overall conclusions regarding their individual and collective validity will then be drawn.

One point is worth noting before we proceed with our individual analysis. That is, the inability of the alternative theories of the firm to deal with the actions of the average firm because, as we have noted previously in this work, most firms in the UK are small firms.

As can been seen from table 7.1, more than 69% of UK firms have no employees, and over 94% of UK firms employ less than nine people. It is apparent that the idea of the average or "representative" UK firm being a large firm is incorrect. Although these large firms are very important to the UK economy, in that they account for a high percentage of employment etc, they are not the normal or average business in the UK. This fact itself means that the managerial theories of the firm cannot be considered as a general theory of the firm and therefore they cannot replace the neoclassical theory. Here we accept that these alternative theories can, at best, explain the action of a very small percentage of, albeit very important, firms.

Employment Size band	Number of Business (thousands)	Business share of total (%)	Employment share of total (%)	Turnover share of total (%)
0	2,596	69.3	12.8	7.2
1-4	748	20.0	9.9	8.2
5-9	200	5.3	6.3	5.8
10-19	113	3.0	6.9	9.0
20-49	55	1.5	7.5	8.0
50-99	18	0.5	5.6	6.7
100-199	8	0.2	4.9	5.4
200-249	2	–	1.6	2.0
250-499	3	0.1	5.0	7.4
500+	3	0.1	39.6	41.2
Total	3,746	100.0	100.0	100.0

Table 7.1: Percentage of UK business by number of employees. (Source: Griffiths and Wall, 2004 pp.64)

7.3.1 Baumol's Sales Revenue Maximization Model

Baumol (1959) contended that large firms that operate in oligopolistic market structures are unlikely to profit maximize. Although Baumol offered no quantitative data to support this thesis, he suggests that this will be the case for a number of reasons. Firstly, people who measure the "health" of a firm consider the firm's sales and not profit; firms need to increase their size to attract capital. Secondly, managers of firms are more likely to be rewarded for increasing sales rather than profits. In order to test the model developed by Baumol, two hypotheses were constructed:

Hypothesis 1

H1: There will not be a relationship between firm size (Turnover) and profit maximization.

The results from the relevant regressions (Model 1 and 2) are recorded in table 6.5 in the previous chapter. An ordered probit model was estimated, with the decision of whether to profit maximize or not as the dependant variable. The results do not support the suggestion that large firms are less likely to profit maximize than smaller firms.

The co-efficient in question is negative, but this negative relationship is not statistically significant. Therefore the null hypothesis cannot be rejected and we must conclude that the size of the firm is not a relevant variable when determining if a firm will aim for a maximum level of profits or not, within this sample.

A second Hypothesis was constructed to test the validly of the sales revenue maximization

model.

Hypothesis 2

H2: There is no relationship between a firm's decision to profit maximize and the concentration ratio of the industry in which the firm operates.

The results reported in Chapter Six (table 6.5) demonstrate that there is no statistically significant relationship between the concentration ratio of an industry (CR-3, CR-5 and HH Index) and the likelihood of a firm operating within that industry aiming for a maximum level of profits. This implies that firms operating in an oligopolistic market structure are not less likely to aim for a maximum level of profits than firms which operate in more competitive markets. Therefore we cannot reject the null hypothesis, that there is no relationship between a firm's decision regarding profit maximization and the level of competition within the industry that the firm operates in. The market share of each firm was also calculated and included in a probit model. There is no significant link between the market share of a firm and the decision to aim for a maximum level of profits.[1]

These results strongly suggest that the size of a firm and whether or not it operates in an oligopolistic market structure do not determine if its manager (owner) will aim for a maximum level of profits. Further, Baumol (1959) also contends that these managers/owners will operate with a minimum profit constraint. The results from the probit model 7 that are reported in table 6.8 demonstrate no link between a firm operating with a minimum profit constraint, the size of the firm, and the market structure in which the firm operates, with the likelihood of the firm being classified as a profit "maximizer".

One possible reason for the lack of support for Baumol's sales revenue maximization model, supported by the data collection undertaken during this study, may be that what Baumol observed when working as an economic consultant (firms would not shut down loss-making sections of their business) is actually a short-run phenomenon. Managers may not be interested in closing departments or sections, or moving out of whole markets in the short run in order to increase profits. They may be willing to make short-run losses in order to maximize long-run profits. When asked to rate how strongly profit and sales were linked the average mark from the interviews was 3.5 (with 5 being very strongly linked). Respondent D contented "you need a certain level of sales to maintain your profits" and further to this Respondent B suggested, "if you get the volume you can make it more efficient than anyone else therefore you're going to make money on it anyway."

[1]The results of the probit estimations that include the HH variable and the MS variable are listed in appendix H.

Baumol claims that businessmen talk about sales when asked how well their business is doing. He assumes this is due to the fact that sales is their main objective. It could be that they see sales as a good proxy for profits. The quotes above demonstrate that managers identified a strong link between profit and sales. Respondent B suggested that, if you are efficient, then more sales equates to more profits.

In this case the availability of information must be considered; the average senior manager will be in possession of reliable, up-to-date sales figures; the same cannot always be said of profits. And so, managers may use sales as an indicator of the health of a firm because they think it is a good short-term proxy for profits.

The results of a probit model that was estimated, using consistency of firm objectives across time, has indicated a positive significant relationship between the likelihood of the managers of a firm changing their primary business objectives between the short-run and the long-run, and the firm being a managerially-controlled firm.

The primary business objectives of managerially-controlled firms are more likely to change between time periods than that of owner-controlled firms. This may add some evidence to support the implication of the previous sections, that Baumol (1959) may have witnessed short-run behaviour on the part of managers of managerially-controlled firms. Indeed, the managers of these firms may have been reluctant to close down loss-making parts of their business, not because they valued sales over profits, but because they felt that short-run maximization of sales revenue would lead to long-run maximisation of profits.

The results from this survey are broadly similar to the results reported by other major projects in this area. Shipley (1981) and Hornby (1994) offer no support for the hypothesis that the likelihood of aiming for a maximum level of profits is linked to the size or ownership of the firm. However, Jobber and Hooley (1987) find some evidence to support a link between profit maximization and size, with smaller firms being marginally more likely to profit maximize than large firms (45.3% compared with 39.2%). These proportions are very similar and any difference in them comes from where the arbitrary dividing line between "small and large" is drawn. On this basis it cannot be claimed that there is a statistically significant difference between small and large firms.

After reviewing the results of the data collection and probit models estimated in Chapter Six it is difficult to offer any support for the sales revenue maximization model. Our opinion is strengthened when we combine the theoretical debate with the interviews and the generally negative results from previous research regarding the validity of Baumol's theory.

7.3.2 Williamson's Managerial Utility Maximization Model

Although Williamson's theory of firm behaviour was developed with similar characteristics to the model offered by Baumol (1959), there are significant differences. Williamson (1964) was specifically concerned with the ownership of the firm, and not necessary the size of the firm.

The suggestion forwarded by Williamson (1964) is that where there is a large degree of separation of ownership from control the management of firms will be relatively free to pursue their own goals. These goals are likely to include the number of staff, perks and discretionary expenditure. As a consequence of this freedom the senior management team will not aim to maximize profits but will trade profits for extra staff expenditure etc.

In order to test this theory a number of hypotheses were developed. Firstly, it is reasonable to assume that where a firm is managerially-controlled, there may be the opportunity for the managers of the firm to pursue their own goals at the expense of profits. As a consequence we would expect there to be a significant relationships between the ownership of a firm and the likelihood of that firm demonstrating profit maximizing behaviour.

Hypothesis 3

H3: There is no significant relationship between profit maximization and ownership type.

The results reported in table 6.5 offer no support for the hypothesis that there is a significant relationship between the decision to profit maximize and ownership type. This suggests that managerially-controlled firms are not less (or more) inclined to aim for a maximum level of profits than their owner-controlled counterparts.

It is difficult to gauge the nature of the management structure of firms, even if there is a relatively wide dispersion of ownership of shares. We have defined a managerially-controlled firm as one where no individual owner has a majority of shares and where the senior manager, who completed the postal questionnaire, claimed not to own and directly control the firm. It is possible that one person could still own a significant minority of the shares of a firm and control the firm as if he did own a majority stake in the firm.

In order to correct for this type of bias, we have constructed a second hypothesis that tests if PLCs are less likely to profit maximize than owner-controlled firms. It is unlikely that any one shareholder within a PLC will have direct control over the firm. Therefore we would expect, following Williamson's logic, that PLCs are less likely to aim for a maximum level of profits than owner-controlled firms.

Hypothesis 4

H4: PLCs are not less likely to profit maximize than non-PLCs.

The results of the probit estimation reported in appendix H show that, although the PLC/Non-PLC variable has a negative coefficient, the associated P-value lies outside the acceptable limited. Therefore there is no statistically significant relationship between the two variables and we must accept the null hypotheses that PLCs are not less likely to aim for a maximum level of profits than non-PLCs.

Further to the results from the probit estimations, one of the interviewees was a director of a PLC. When asked about the extent to which they considered shareholders when making decisions he said,

> "... if you want the honest answer, not the company line, then we do not consider small shareholders at all. What we are interested in is the large institutional shareholders, the pension schemes and large scale investors. We have fortnightly meetings with them and would not do anything without their agreement." Respondent E

As identified in the quote above, it is not necessarily true to suggest that managers of PLCs are free to act how they please. This is especially true in an economy like the UK's, where pension funds, investment trusts etc hold over 60% of the equity of UK listed corporations (Griffiths and Wall, 2004).

Williamson (1964) also suggests that the competition within the industry is also a significant factor which determines if a firm is likely to pursue a goal of profit maximization or not. As has already been noted in the previous section, there is no link between the level of competition within an industry (measured by CR-3, CR-5 and HH) and the likelihood of a firm aiming for a maximum level of profits.

The broad premise offered by Williamson (1964), that large joint stock firms are unlikely to profit maximize, due to the differing objectives of owners and managers, cannot be validated by the results from this study. As previously noted these results fit broadly with the results of the previous significant research in this field.

In defence of Williamson's work, the problem here may be with how we measure the separation of ownership from control and not the original premise that managers and owners will have different objectives. However, the assumption that managers are allowed to act in

a manner that allows them to increase their own utility at the expense of the shareholders may prove not to be true for all managerially-controlled firms.

7.3.3 Marris and the Growth Maximization Model

Marris (1964) contended that firms which suffer from a separation of ownership from control are more likely to aim to increase the rate of growth that the firm enjoys, as opposed to aiming for profit maximization. As with Williamson's model, this is due to the owners (shareholders) and the managers having different objectives. Where owners prefer profit, the managers' preference is to increase the rate of growth.

The results recorded in the previous sections demonstrate that the analysis of the data set can offer no support for the hypothesis that ownership type (managerially-controlled firms or owner-controlled or PLC) has a significant influence on whether a firm will aim for a maximum level of profit or not. If Marris's theory is correct then we should find that managerially-controlled firms or PLCs are less likely to aim for a maximum level of profits than owner-controlled firms. We do not find this relationship and as a consequence cannot offer support for the growth maximization model.

Other authors have attempted to test Marris's theory, but in a manner that is not appropriate for combining with this study. Nevertheless, their findings can be of interest when we attempt to assess the validity of the theory. The findings from this previous research are mixed. Radice's (1971) findings suggest that owner-controlled firms actually achieve a higher rate of growth than managerially-controlled firms. This opposes the predictions offered by Marris. However, other authors have found some support for Marris's model (Kuhn, 1976).

In this opening section of this data analysis chapter the managerial theories of the firm have been evaluated. We have not been able to offer support for any specific managerial theory of the firm. However, we are careful that we ourselves do not fall into the same trap as the anti-marginalists when we review these managerial theories. If we evaluate them in terms of their ability as a predictive model that is correct or incorrect we have to conclude that our data, and that of other researchers, cannot offer any support for the validity of these theories. Nevertheless, that is not to say that they do not have some merit at a general level, namely, that managers who do not own the firm, may have different objectives to owner-managers. They may, if allowed, aim to maximize their own utility, and profits may only be one part of their individual utility curve.

The problem is partly one of measuring the extent to which these managers are free to act in their own interests, as opposed to that of the owners of the firm. The problem is also due to the approach taken by the managerial theorists. They have criticised the neoclassical approach for being over-simplistic, only to replace the maximization of a single variable (profits) for the maximization of sales, with a profit constraint (Baumol, 1959), growth with a security constraint (Marris, 1964) or the maximization of a simplistic utility function (Williamson, 1964). It is difficult to understand why Marris and Williamson in particular feel justified to criticise profit maximization as being over-simplistic, when their own models can hardly be described as complex models in which we consider all the relevant variables that can influence the managers of businesses when they make decisions.

7.4 Behavioural Theories of the Firm

Simon (1959) and Cyert and March (1963) propose behavioural theories of the firm, where a 'firm' is made up of a collection of individuals who form themselves into groups. These groups then interact and through this process of interaction decisions are made within a firm in order to satisfy the various interest groups that combine to form it. Once decisions have been taken that satisfy the groups within the firm, there is no pressure to change these decisions until some groups become unsatisfied with the results. This leads to the conclusion that firms are unlikely to aim for any single objective or to exhibit maximizing behaviour because the firm is a coalition of groups and these groups will have different interests.

The interaction of these different groups will lead to "satisficing" behaviour, as each group will have a minimum satisfactory level that they will accept for each relevant variable. These behavioural theories assume that all firms are a complex combination of individuals and as a result there is a process of bargaining and no autocratic manager making decisions. There are a number of issues concerning this approach. The first problem with these theories is the presumption that firms are all complex. It has been noted previously in this study that most firms are small, with over 94% of all UK-based firms employing nine or fewer people (table 7.1). It is very difficult to accept that these firms are a complex combination of different interest groups and coalitions. It is reasonable to assume that the owner of these firms will make major decisions and expect these decisions to be implemented. There is, of course, no guarantee that the employees will obey all the managers' directions and rules. Indeed it is entirely probable that some employees will shirk but that does not change the manager's decision or ability to make decisions. And presumably at some point a manager

would dismiss an employee who continually disobeyed his direction.

As noted in the sixth chapter, only one of the participants in the interviews represented a PLC. Three of the other four represented medium-sized private limited firms and the remaining subject owned and controlled a small firm. When asked if they consulted other employees or shareholders when making business decisions, respondents A, C and D were clear that they (or the owner of the firm) made the decisions. They might seek advice but ultimately it was their decision. This is likely to be the case for most firms in the UK where the firm is owned by one or two people.

Respondent D said,

> "I consider other directors... I convey the information to the other directors... but I have the final say."

Respondent A stated,

> "We have an owner. He and his wife own 100% of the firm. They will ask my advice, and it's the same with the other directors, but the owner makes the decisions. It's his company."

Respondent C,

> "I make all the decisions and do not consult with anyone."

The other two firms (one a PLC) had more complex management structures and the decision-making process did involve more than one person. However, that does not mean that they did not take maximizing decisions. One of the firms in question was a sales maximizer: "It's definitely sales, we are aiming to have a 50% market share within five years, sales come before profit or anything else..." Respondent B. Although the firm in question had a complex managerial structure, it cannot be claimed that the firm demonstrates satisficing behaviour as the managers had a clear single overriding objective of sales maximization.

In conclusion, we see that for most firms there is no complexity of decision making simply because there is a lack of complexity within the firms.

If we accept, as we did with the managerial theories, that behavioural theories are not relevant for the vast majority of firms, we can then consider their validity when applied to the large complex organisations that they were presumably developed to deal with. Even

when we consider the large complex firms it is not entirely clear that decision making is always as complex as it is assumed to be by the behavouralist theories. Machlup comments,

> "Why should it take special theories of bureaucracy to explain how the news of a wage increase "flows" through various hierarchical levels up or down or across? Yet this, and this alone, is the information that is essentially involved in the theory of prices and allocation, since it is the adjustment to such changes in conditions for which the postulate of maximizing behaviour is employed." (Machlup, 1947; p 152)

If we consider the idea of profit maximization as a business objective, which may or may not be achieved, it is these types of decisions on wages, costs of raw materials or indeed more strategic long term decisions concerning what markets to enter or what size of factory to build that we are concerned with. It would seem reasonable to assume that a relatively small number of people are involved in these decisions and that someone (or a majority of a committee) takes an actual decision.

If we consider the empirical evidence gathered from the data collection, this can be combined with the theoretical treatment and conclusions can then be drawn.

Respondents to the postal questionnaire were asked if they aim for a "maximum or satisfactory level of profits". 53% of firms claimed to aim for a satisfactory level of profits. Shipley (1981) and Hornby (1994) obtained very similar results (51.9% and 52.3% respectively) when they asked "once an objective or target had been reached was there an impetus to improve on this?"

With reference to the latter of the two surveys mentioned above, there is no way of knowing if the objective or target set was indeed a maximum level of profits. More generally speaking, respondents to the questionnaire may take this type of question too literally and assume that if they do not work twenty-four hours a day then they cannot be aiming for a maximum level of profits. However, it must be accepted that a significant number of respondents claim to be interested in satisfying and not maximizing objectives.

We would expect there to be a significant negative relationship between the decision to profit maximize and the number of employees within an organisation. As the number of employees increases there is more chance of a complex organisational structure developing which could lead to firms aiming for a satisfactory level of profits.

Hypothesis 5

H5: There will be no relationship between firm size (employee) and profit maximization.

The results of the probit model (table 6.5) show no statistically significant relationship between the number of employees within an organisation and the likelihood of the managers of an organisation aiming to maximize their profits. Although the number of employees within an organisation is not an exact measure of the complexity of decision making within an organisation, it is a good proxy and it is the measure that the behavioural theorists themselves use (Simon, 1959; Cyert and March, 1963).

A probit model was estimated with the dependent variable taking the value of 0 if the firm was a "statisficer" and 1 if the firm was a maximizer, and regressed against a number of independent variables including the number of employees. The coefficient for the employee variable is indeed negative (-0.7943) but this relationship is not statistically significant as the t-ratio is out with the significant range. However, a probit model estimated with a reduced sample of 172 does suggest a significant negative relationship between the likelihood of a firm aiming for a maximum level of profits and the number of employees.[2] As firms increase in size they appear less likely to profit maximize.

Although empirically the results from this survey and previous studies do offer limited support for the concept of "satisficing" behaviour, this in itself does not validate the behavioural theories of the firm. The problem with these theories is that they concern the internal workings of a firm. This is the exact opposite aim from that of profit maximization and the neoclassical approach. Although one can disagree with the neoclassical framework and abstract theorising, one cannot replace an abstract, generalist theory with a specific theory.

The point of neoclassical theory is the ability to predict the behaviour of individual and, therefore, firms from a distance. Behavioural theories demonstrate that all firms are different and that all large firms have a different set of interest groups. Although this suggests the concept of "satisficing" behaviour, it must be acknowledged that all firms have a senior management group, who do consider and consult other groups, but who will make the final decision on the best way forward.

We conclude that there is some merit in the idea that as firms become larger and more complex, they may be (marginally) less likely to profit maximize. Although we cannot (from our own probit estimations of the whole sample) offer any support for this hypothesis, there is some supporting evidence from the survey responses and other authors' work. This

[2] A probit model with a reduce sample (172) was estimated because data on corporate governance is only available for 172 of the firms survey.

approach can only be useful when dealing with relatively large firms and therefore rules out most UK firms. Furthermore, this is not a predicative economic theory which we can use to form a proxy for the actions of the owners/managers of firms. We do not know what objectives will be 'satisficed' and what the satisfactory level would be for each variable. This level of information would only be accessible by studying an individual firm in detail. What we end up with is a theory that is not applicable to the average firm and that is firm-specific to such a degree that generalisation is almost impossible. Therefore, behavioural theory cannot be seen as a substitute or alternative to the neoclassical approach but merely an addition that offers some extra insight but is not a replacement. After all, how do we decide on the level of price or output under a monopoly when compared with competition, using the behavioural approach?

7.5 Other Theories of the Firm

In the second half of the twentieth century a number of theories were forwarded to offer insight into the behaviour of firms. The transaction costs approach, pioneered by Coase (1937) and developed by Williamson (1975; 1985), suggests that firms exist in order to overcome the costs of using the market. Although this approach offers a strong reason for the existence of firms in the first place, it makes no attempt to predict the behaviour of firms. Beyond stating that firms exist where the costs of the market are too high, presumably these firms are interested in reducing costs to increase profits.

Agency theory (Jensen and Meckling, 1976) examines the principal-agent relationship and the problems of adverse selection and moral hazard. These theories suggest that employees have an incentive to cheat, once appointed, and this can be offered as a reason for firms not profit maximizing. Although we cannot find any link between the size of the firm and the decision to profit maximize, this does not negate the thinking behind the agency theories. It could be that the owners of the firms are managing to control the actions of their agents more efficiently. This approach can be linked into the concept of corporate governance. The level of corporate governance can be seen as the extent to which shareholders can influence the managers of their firm.

7.6 Corporate Governance and the Theory of the Firm.

The concept of corporate governance leads to the formation of a new, testable, hypothesis concerning the behaviour of firms. If we accept that the average owner of a firm is interested

in financial returns and that more are preferred to less, then we can claim that increasing profits, up to a maximum level, is likely to be the primary objective of a large number of shareholders. Therefore, if the management of a firm acts in accordance with the wishes of the firm's owners, those managers should aim to maximize profits. If we use the concept of corporate governance as a proxy for the extent to which the managers of firms act in a manner that is consistent with the shareholders' best interests, then we can conclude that a firm with a high degree of corporate governance should be more likely to aim for a maximum level of profits than a firm with a low degree of corporate governance. This assumes that the average shareholder of a firm is interested in maximizing their returns from their investment and that profit maximization is a good proxy for the future size of any dividend and capital gain available to the shareholders. This is a reasonable assumption, assuming markets work in an efficient manner.

Conversely, if the managers of a firm are relatively free to act in a way that increases their own utility, and that this utility is mutually exclusive to maximizing profits, then these firms demonstrate a low level of corporate governance and will not profit maximize.

Hypothesis 6

H6: There will be no relationship between a firm's level of corporate governance and profit-maximizing behaviour.

The results from probit model six, displayed in table 6.9 demonstrate a statistically significant relationship between the decision to profit maximize and the level of corporate governance within the firm. The coefficient for the corporate governance variable (CG) is .037766 and the resultant p-value is 0.048. Therefore we reject the null hypothesis; there is a link between the decision to profit maximize and the level of corporate governance within firm. The fact that the coefficient of the CG variable is a positive figure demonstrates that as the level of corporate governance within a firm increases, so does the likelihood that a firm will aim to maximize profits.

It has been well established that the parameter estimates from a probit model can be transformed to yield estimates of the marginal effects - that is, the change in the predicative probabilities associated with a change in the explanatory variables (Greene, 2003). Microfit provides a marginal effect figure for all its estimations. This figure is then multiplied by the coefficient and the results tell us what would happen to the probability of a firm being classified as a profit maximizer if we increased the value of the independent variable by 1%. The marginal effects of a 1% change through all of the first set of models (1-5) are small

and insignificant and are not reported here. In model 6 (table 6.9) we see that by increasing the level of corporate governance by 1%, the likelihood of the firm being a profit maximizer increases by 0.39893.

Although the resultant marginal effect is relatively small, it does demonstrate that if we can increase the corporate governance score of a firm it is more likely to aim for a maximum level of profits. This strengthens the argument that policy makers have to make sure that there are robust corporate governance rules and regulations in any economy. If we accept the argument that shareholders want, and more importantly, have a legal right to expect the maximum returns from their shareholdings then we must conclude that an increase in the level of governance regulations is a positive move.

Of course one may argue that it would be a more socially desirable outcome if firms in the UK were influenced to act in a manner more consistent with the stakeholder theories of corporate governance and maximize the utility of a wider group of stakeholders and not only the shareholders. This issue is beyond the scope of our study. Here we have focused our attention on determining what factors influence firms to act like the perfectly informed profit maximizer of neoclassical economic theory. Our results suggest that it is an increase in corporate governance, as defined by the current UK regulatory framework that will do this. Thus we conclude that an increase in corporate governance is beneficial for the shareholders of listed firms.

One of the participants in the follow-up interview, who represented a firm listed on the FTSE 100, confirmed that the management of his firm were particularly interested in the aims of institutional shareholders, to the extent of having a department set up to deal with them. The firm in question had fortnightly meetings with its institutional investors and would not "do anything without their agreement" (Respondent E). It is likely that this is common practice amongst large PLCs and may mean that these firms do pay attention to (some) of their shareholders.

The shareholder theory of corporate governance detailed and tested above is not the only theory concerning corporate governance. An alternative group of theories developed by Freeman (1984), Evan and Freeman (1988) and Blair (1995) have been classified as stakeholder theories of corporate governance. These theories suggest that the managers of a firm should attempt to maximize the utility or returns to all stakeholders and not just shareholders. Other stakeholders include employees, suppliers, local government etc. This suggests an additional testable hypothesis, that firms classified as stakeholder firms are less

likely to profit maximize than shareholder firms. This is because the latter is interested in all stakeholders of the firm and not simply the returns to the shareholders.

Hypothesis 7

H7: Shareholder firms are more likely to profit maximize than stakeholder firms.

The data collected for this study suggests no significant relationship between a firm being classified as a stakeholder/shareholder firm and the likelihood of the management of the firm aiming to maximize profits.

Here we note that the difficulty of defining and classifying firms as either a stakeholder or shareholder firm cannot be ignored. The approach used for this study was to classify firms using the responses to three questions concerning the treatment of employees e.g. "Are all employees included in bonus schemes and/or pension schemes etc?). This issue was explored in more detail in the follow up interviews. When asked to what extent they agreed with the following statement: "Shareholders/owners are the only group of people I consider when making a business decision", there was strong agreement from the participants (see table 6.10). Although three out of five respondents claimed to consider their employees when making a business decision, this itself does not mean they are interested in their employees' utility, only that they consider their workforce when making decisions.

Another problem with this issue is the manager's motivations. If the managers of a firm attempt to keep their workers, and other stakeholders, content in order that they work efficiently and maximize the owners' profits, is this consistent with stakeholdership? When asked if they were good bosses in order to motivate their workforce to make them more productive, the managers' surveyed responses averaged three out of five (with five indicating strong agreement with the statement and one suggesting strong disagreement with the statement).

Drawing conclusions from the results of these follow-up interviews, concerning the questions relating to stakeholders, is difficult. To some extent all participants claimed to be interested in the welfare of their workers, separate from any aim for higher efficiency, but at the same time three of the five respondents concluded that, in the end, the reason that worker welfare was a priority was that happy, contented workers make good workers.

> "You have to make these people happy. You train staff for five years minimum, they learn by experience you need to keep them. We sell a differentiated product we need to keep trained staff. The firm can only be successful with experienced

staff." Respondent D

The quote above demonstrates that to a certain extent you need to be a stakeholder firm to be a success, and if you need skilled staff you must treat them well to keep them.

The importance of these results lies in the fact that they bring together the managerial theories and the neoclassical theory. In Chapter Two it was demonstrated that no one had adequately falsified the neoclassical theory and similarly no one had proved, in any conclusive manner, the validity of the alternative theories of the firm. However, there is no doubt that the validity of the neoclassical theory has been continually questioned and that the idea forwarded by the alternative theories appeared to have some merit.

The results from this study suggest that the dominant primary objective of a firm is to maximize profits, but a significant number of firms will not aim to maximize profits in the manner suggested by the alternative theories of the firm. The extent to which the owners of the firm can influence the managers of the firm is the relevant determinant variable. Therefore the ideas suggested by the managerial theorists are correct, that managers will act to maximize their own utility if they are allowed to. The neoclassical theory is also correct in that firms, on average, aim for a maximum level of profits. What has not been explored until now (within the neoclassical economic framework) is the extent to which managers or owners have the dominant voice within a firm. The results of this study suggest that the level of corporate governance within the firm (and not the share ownership structure as previously suggested) will determine who has the dominant voice.

There has been no attempt here to suggest alternative goals managers may aim for. It is likely that the alternative goals are a combination of those offered by Baumol (1959), Williamson (1964) and Marris (1964). That is sales, growth, discretionary expenditure, extra employees etc. Firms and the managers who run these firms are so numerous and different in their aims and desires that it is impossible to develop a single alternative aim. The method developed by Williamson, suggesting that managers aim to maximize their own utility, appears to be the obvious economic approach to take. After all, if economic agents are not rational, and do not attempt to maximize their own utility, can economists say anything concerning their behaviour? Attempting to build a predictive, general model, where we suggest a number of common variables that combine to form a matrix that in turn determines the utility function of an individual managers, is both ambitious and beyond the scope of this study.

7.7 Implications of the Study Results

The aim of this study was to test the validity of economic theory and to offer a more reliable version of the theory of the firm. Although the theory of the firm and the concept of profit maximization play an important role in economic theory which affects the government and other policy makers, this study was concerned with the theories as academic works. It is hoped that this study has provided some empirical and theoretical support for the theory of the firm, and that the results may allow economists to have a little more confidence in the theory of the firm and their own models which utilise profit maximization as a starting point.

Although it was not the aim of this study to offer any advice for policy makers or regulators we cannot avoid drawing the obvious conclusion that is suggested by these results. That is, the rules on the governance of joint stock firms are very important and need to be strengthened. The exact nature of these reforms and issues is beyond the scope of this study but, if we accept the result that corporate governance is a determinant in the choice of profit maximization and that shareholders of firms want to maximize their returns from their shareholding, then, in the long run, no matter what market imperfections exist, it is best served by these firms maximizing profits. Therefore it is important that a set of efficient rules and regulations ensure that the managers of joint stock companies act in accordance with the wishes of the owners of the firm.

7.8 Suggestions for Future Research

Although the behaviour of individuals who own and/or manage firms is a very complex issue that suggests a number of possible future research projects, we can identify one specific area of research where there is a need for work to be carried out.

The limitations identified within this research project lead us to conclude that an important area for future research lies within the validity of the variables that are used to test profit maximization, stakeholder theory of corporate governance and shareholder theory of corporate governance.

In order to have confidence in any research concerning the behaviour of individuals or groups, the validity of the variables used is of paramount importance. Although attempting to ascertain the objectives of managers of firms can be traced back to Hall and Hitch, at least, in 1939, there remains a concern of the validity of the results generated from survey

research or indeed other form of research. Therefore, the development of new and improved methods to answer the question of the primary business objectives of firms would be a useful starting point from which the researcher could proceed.

Unlike the concept of profit maximization, there is not a long history of measuring the level of corporate governance within firms. This is also true for the stakeholder/shareholder approach. A useful direction for future research would be in investigating how to measure these complex concepts accurately, in a manner that can be used for other research.

Another area of interest could be to repeat this study with a wider geographical population. Although these theories of the firm were not developed to apply to any specific country, we could argue that they are have been developed from a market economy viewpoint (UK/US) and that it may be interesting to see how the results differ if you consider a more socialist economic structure (e.g Germany or France).

7.9 Concluding Comments

In this penultimate chapter of this thesis the results from the data collected and the various types of data analyses have been discussed and combined with the theoretical debate carried out in the second the third chapters of the study. It has been possible to offer support for the neoclassical theory of the firm, while still acknowledging its limitations. The alternative theories of the firm have been discussed and tested using the original data collection and data analysis techniques employed. Although it has not been possible to offer any support for the specifics of the managerial theories of the firm, it has been possible to offer some support for the general idea employed to develop these theories. That is, the problems caused by the principal-agent relationship.

An original hypothesis has been developed and tested. This new hypothesis suggests that there is a positive link between the level of corporate governance within a firm and the likelihood of the management of a firm aiming to maximize the profits earned by the firm. The empirical data collected has offered support for this new hypothesis. The concept of a corporate governance theory of the firm has the benefit of being applicable to all firms, regardless of their size, ownership type or any other variable. This sets it apart from the alternative theories of the firm, which are only applicable to a small proportion of firms. It is also a significant and important development of the neoclassical approach as it suggests that profit maximization is the primary objective of the average firm, and when profit maximization is not the primary objective this can be explained within the current

neoclassical framework.

The limitations of the study have also been acknowledged and discussed. Although the limitations of the thesis are accepted, the quality, reliability and originality of the study are hopefully apparent and the author believes that the results of this study are relevant, and valid.

Finally, during the last two sections of this chapter possible directions for future research have been suggested and the implications of the results from this study have been briefly introduced.

Chapter 8

Conclusions

8.1 Introduction

In order to test the theory of the firm and the alternative theories of firm behaviour, primary data was collected from 310 managers of UK-based firms. This primary data was then combined with secondary data collated from the FAME database and the FTSE ISS Corporate Governance Index. This data was used to construct a number of binary probit models to test the validity of competing theories of the firm. Finally, the data was used to test an original hypothesis, that the level of corporate governance is the factor that determines if the managers of a firm will aim for a maximum level of profits or not.

The rest of this chapter is structured as follows. The following section of this concluding chapter outlines the aims and objectives of the study and briefly describes the extent to which these objectives have been realised. The key findings of the study are set out in the next section of the study. There follows a detailed explanation of the conclusions from each individual chapter of this report. The implications of these results are then explored, and the limitations are acknowledged. Finally, brief concluding remarks are presented.

8.2 Aims and Objectives of the Study

The aims and objectives of this study were set out in the opening chapter of this thesis. This study has been written to explore the validity of the neoclassical theory of profit maximization and alternative theories of the firm. The specific aim is to test seven hypotheses which offer evidence as for the validity of neoclassical, behavioural, and managerial theories, and finally for a corporate governance theory of the firm (that was developed during this thesis).

The results from this study offer evidence that profit maximization remains the dominant

business objective of firms in the UK today. 49.7% (154) of the firms surveyed claimed that their primary business objective was to maximize profits. Support for each of the other options - another objective not listed (27.4%), a combination of sales and profits (21.3%) and maximum level of sales revenue (1.6%)- was significantly less than for profit maximization. Therefore in view of the evidence reported in this study, we can not deny profit maximization its role as the primary ambition or goal of the firm.

However, this support for profit maximization as the primary goal of the firm cannot be offered in an unqualified manner. Indeed, we have to accept that a majority of the respondents to the postal questionnaire claimed not to aim for a maximum level of profits. In order to investigate this issue a number of hypotheses have been tested. The results from these hypothesis tests are that there is no statistically significant relationship between the likelihood of the managers of a firm aiming to maximize their firm's profits and the size of the firm by turnover, the number of employees, the ownership type, the level of competition in the industry, and whether or not the firm is a stakeholder firm or a shareholder firm. The results of these tests suggest that managerial and behavioural theories of the firm cannot explain the behaviour of firms.

An original hypothesis was developed which combines the shareholder theories of corporate governance with the theory of profit maximization. The data suggests a positive, statistically significant relationship between the level of corporate governance within a firm's management structures and the likelihood that a firm will aim for a maximum level of profits as suggested by neoclassical economic theory.

During this study detailed evidence has been supplied that offers support for the neoclassical theory of the firm and which refutes the alternative theories of the firm. Finally, a new hypothesis has been developed, and has been supported with empirical results.

8.3 Key Results from the Study

There are two key results from this study. Firstly evidence is offered that supports profit maximization as the dominant business objective of the firm. Secondly a statistically significant link between profit maximization and the level of corporate governance observable within a firm's management structures is reported.

The importance of the evidence confirming profit maximization as the overriding business objective of the firm concerns economists' continued use of neoclassical economic theory. Almost all students entering a UK business school will be taught basic economics; at the

heart of these classes will be neoclassical economics and profit maximization. Further to this, much of the research undertaken by economists is developed using a neoclassical framework. For these reasons any evidence which supports profit maximization is to be welcomed. Neoclassical theory is a framework that does not intend to accurately describe the behaviour of economic agents; instead the focus is on the reliability of the predictive outcome of the theory. Nevertheless, evidence that a majority of senior business decision makers at least claim to aim for profit over other objectives is welcoming and offers some response to those who claim that profit maximization and the neoclassical framework in general have been discredited by empirical observations.

Although earlier studies employing similar methods (Hall and Hitch, 1939; Shipley, 1983; Jobber and Hooley, 1987; Hornby, 1994) offer some support for profit maximization as a primary objective of businesses they all find that a majority of respondents to their questionnaires do not claim profit maximization as their primary goal (or at least they do not after the results have been interpreted by the authors in question). It could be argued that most of these reports have a negative bias towards profit maximization. For example, Shipley (1983) finds that 47.7% of the firms surveyed claimed to be profit maximizers. However after Shipley's re-interpretation of his results the figure falls to 15.5%. A similar technique is used by Hornby (1994) resulting in a decrease in the number of profit maximizing firms from 28.6% to 24.7%. The findings from this survey suggest that almost half (49.7%) of firms claim profit maximization as their primary goal. The results from this study are clear in that profit maximization was the dominant choice of business objective according to the respondents to the questionnaire.

We must conclude that irrespective of possible constraints in the market in which they operate, managers act "as if" they were the perfectly informed agents of neoclassical economic theory, who aim for profit maximization as their overriding business objective, even though - in real life or ex post - their objectives may not necessarily move from this ambition into reality.

This key finding concerning profit maximization is further strengthened within this study by the detailed arguments concerning the meaning of profit maximization (see Chapter Two and Chapter Three). In contrast to the previously mentioned empirical studies, a detailed definition of the meaning of profit maximization has been expounded in this study. A business objective has been defined as an overriding aim of the managers of a firm that will be used as a basis to decide on major decisions that the owners or managers take. Therefore

this study not only offers support for profit maximization; it also offer a clear definition of what profit maximization means in the real world.

The importance of the second key finding, that the level of corporate governance is a determinant of the firm's senior decision makers claiming to aim for profit maximization, is that it offers support for the key role that corporate governance regulations play in the current regulatory system. In an economy like the UK, where there is a widely dispersed ownership of shares, it is important that corporate governance regulations are in place to limit the principal-agent problem. Corporate governance regulation in the UK has been developed using the shareholder model of governance. Therefore there is a presumption that shareholders of a firm have a legal right to expect the managers of the firm to aim to maximize their returns. It is central to this system that following good corporate governance practice does indeed lead to the managers of firms aiming to maximize the returns to the shareholders. Although we cannot claim to provide any evidence concerning the performance of the firm and the returns to the shareholder we do offer evidence that firms which follow good corporate governance practice are more likely to claim profit maximization as their primary business objective. It may follow on from this that the shareholders in these firms are more likely to get a maximum return on their investment. If that is indeed the case the governance system in the UK can be seen as functioning reasonably well in this regard.

The support offered for the link between corporate governance and profit maximization also allows us to reconcile some of the differences between the neoclassical viewpoint and that offered by some of the alternative theories of the firm. The results from the data analysis suggest that the level of corporate governance is a determining factor in the decision to profit maximize or not. If there is a high level of corporate governance within a firm's management structure, over a given period of time such a firm may indeed act in a manner consistent with that of profit maximization. This is because the difficulties suggested by the managerial and behavioural theories may be overcome by this high level of corporate governance. However it is possible that managers of a firm have a number of different goals, and it is also true that large firms are a collection of stakeholders and not an individual intelligence and therefore these managers may not aim to profit maximize.

It is entirely possible that if managers are not adequately constrained by shareholders and regulators they may not profit maximize and they may aim to maximize their own utility at the expenses of the shareholders. However if a firm follows good governance practice then the outcome may be firms that attempt to maximize profits.

Although this study (in common with other studies of this nature) has weaknesses, the key findings offer support both for economists and their reliance on the profit maximizing model of the firm and on regulators' current interests in improving the governance of firms.

8.4 Intermediate Conclusions from Each Chapter

In the literature review section of this thesis the relevant literature was explained and critiqued. A review of work that underpins neoclassical, managerial and behavioural theories of the firm was undertaken. This theoretical review was then complemented by a review of previously undertaken empirical research within this subject area. In this chapter it was possible to identify the weaknesses in earlier studies of a similar nature to this project.

A number of the previous research projects used a small sample that made any generalisation of the study results suspect. The samples used by Hall and Hitch (39) and Hornby (77) were too small to offer results that can reliably claim to offer even an approximation of the behaviour of the average business. To overcome this weakness the sample used for this study was 310.

Furthermore, all the previous studies (Hall and Hitch, 1939; Lister, 1947; Skinner, 1970; Shipley, 1983; Jobber and Hooley, 1987; Hornby, 1994) suffer from the same two (major) problems. Firstly, they all lack validity due to the nature of the research methodology employed, and secondly, they fail to offer their own explanation for the behaviour of owners or managers of firms. Their analysis is limited to criticising the work of others.

The review of the literature demonstrated that the previous research suffered from a lack of validity because there was no attempt to verify the responses to the original data collected. This weakness was identified and a number of semi-structured interviews were undertaken in an attempt overcome this weakness and provide results that are both reliable and valid.

The second, and arguably most significant weakness, which all the previous studies share, is their failure to offer an explanation of the business objectives of firms. The earlier empirical studies all suggest that the majority of managers surveyed claimed not to aim for a maximum level of profits. These studies then continue to offer little or no evidence for the validity of the alternative theories of the firm. Unfortunately none of the previous authors put forward a testable suggestion as to what the business objectives of the firm are and why firms do or do not aim for a maximum level of profits.

This specific area of interest was fully explored in Chapter Three of the thesis. An attempt

was made to offer an explanation as to why none of the competing theories of the firm have been supported empirically.

There were two main objectives which were satisfied on completion of the theory chapter. The first objective was to explain the theories that underpin the concept of corporate governance and to link these theories to the idea of a business objective. The second aim was to review the relevant theoretical literature in greater depth and attempt to offer a refined theory of the firm.

The conclusion that comes from the first section of the theory chapter is that a debate is still ongoing concerning the meaning of the term profit maximization. A number of authors have interpreted this term in its strictest sense and claim that Marshall (1890) suggested that the managers of firms actually calculate the marginal revenue of their production and equate this with the marginal costs of their production (Hall and Hitch, 1939; Lister, 1946). Others have suggested that the profit maximization concept is both more abstract and more subjective than suggested by the anti-marginalists (Machlup, 1967).

The theoretical review undertaken within this thesis has allowed for the formation of a clear understanding of the concept of profit maximization. That is, the acceptance that there is a difference between the theoretical model of profit maximization (MR=MC), (which economists use to explain basic ideas to undergraduates)and the concept of profit maximization as a business objective. Although we are happy to use the MC=MR rule for simplicity and to offer a constraint (and therefore a simple solution) for our calculus based models, economists (or indeed economists who understand the theory) do not suggest that businessmen in the real world use these marginal methods to set the price of the goods or services that they offer for sale. The idea of profit maximization as a business concept simply suggests that the owners or managers of businesses make major decisions based on their desire to increase the level of profit that their firms make. It is this definition that was identified as the most appropriate within the theory chapter of this thesis and this definition that has been carried forward throughout the whole dissertation.

The second conclusion that stems from the third chapter concerns the alternative theories of the firm. During the second chapter various weaknesses within these theories were identified. In summary, the managerial and (to a lesser extent) behavioural theories of the firm are only applicable to a very small number of firms and there is little evidence as to their validity in explaining the behaviour of the small number of firms that the theories were concerned with. Although problems were identified individually with each of the theories, the main

weakness identified was with the underlying building block of these theories, that is the separation of ownership from control.

A review of the empirical evidence forwarded to support the idea that large firms normally suffer from a separation of ownership from control suggests that this phenomenon was not as widespread as previously thought. Notwithstanding this reinterpretation of the evidence that claimed to support the theory, there are two more important issues.

Firstly, that most firms that operate in the UK are small owner-controlled firms that do not suffer from any separation of ownership from control. Indeed, when we consider the statistic that 94% (table 7.1) of firms in the UK employ nine or fewer staff we may be forgiven for wondering why economists pay so much attention to the very small number of large firms that are based in the UK. The reason is that this small number of large firms have a disproportionate influence on the level of employment and GDP in the UK.

If we accept the importance of these large firms and assess the ability of the alternative theories of the firms to explain their actions, there is still a second problem. That is the assumption that the separation of ownership from control not only exists in large firms, but also allows the managers of these firms to behave as they please. The argument synthesized from the theory chapter is that this assumption, concerning managers' freedom to act how they please, cannot be justified or accepted at face value.

Within this section of the thesis it was possible to explain the concept of corporate governance and link this to the discussion concerning the freedom of managers. It is true that some managers of large firms may act how they please, within reason. It is also true, according to the theories of corporate governance, that managers have a duty to maximize the utility of the firms shareholders.

These competing ideas allowed for the formation of a new hypothesis concerning the theory of the firm and alternative theories of the firm. The alternative theories are incorrect because they assume that all large firms suffer from a low level of corporate governance within their senior management structures. The neoclassical theory of the firm cannot explain the behaviour of a large number of firms because it fails to consider the possibility that corporate governance within a firm may not be perfect. The conclusion from this section of the study is that it is the level of corporate governance within a firm's management structures which is the determining factor explaining the likelihood of the managers of a firm aiming to profit maximize.

The competing paradigms of inquiry that could have been used to inform this study were

explained in the fourth chapter. Postpositivism was identified as the most appropriate paradigm of inquiry to follow for this study. The lack of validity associated with positivistic studies ruled out this approach being adopted within our study. In order to overcome some of the limitations identified in the literature review, qualitative and quantitative data have been combined. These methods suit the use of the postpositivistic paradigm, where the limitations of positivism are accepted and minimized. Due to the abstract, generalist nature of the theory of the firm it was decided that a high degree of reliability was needed in order to make the suggestion that the results from the sample may be applicable to the whole population. This ruled out the use of a more phenomenological paradigm.

Following the identification and justification of the postposivisitc paradigm of inquiry as the most appropriate choice of paradigm in which to ground this study, a number of hypotheses were constructed in order to test the competing theories of the firm and a new hypothesis was identified from the theory chapter, that firms with a high degree of corporate governance will aim to maximize profits and that firms with a low degree of corporate governance will be less likely to aim for a maximum level of profit.

The nature of the data to be collected and the specific analytical techniques that have been employed were explained and justified in the data collection and models section of this report. The appropriateness of using a postal questionnaire for the primary data collection has been set out in detail. The specification of each of the variables included in the probit estimations is detailed and justified in this section of the thesis. The conclusion drawn from this chapter (Chapter Five) is that each of the variables identified in this section is appropriate and will enable the testing of profit maximization and alternative theories of firm behaviour.

The results of the data collection and data analysis were reported in the sixth chapter of this thesis. The findings suggest that a significant minority (49.7%) of managers/owners of firms aim to maximize the level of profits that their firm generates. Profit maximization remains the dominant choice of business objectives because no other options gained such a high response rate.

The results from the ordered probit models are detailed in the data analysis section of this report. These results suggest that the size of the firm, the number of employees, the concentration ratio, ownership status and the shareholder/stakeholder variable are not statistically significant factors in determining the likelihood of the owners or managers of a firm aiming for a maximum level of profits. A binary probit model estimated with a variable

measuring the level of corporate governance within a firm's management structures suggests a statistically significant relationship between this variable and the likelihood of an owner or manager of a business aiming to maximize the level of profits achieved by the firm.

Finally, the results from the semi-structured interviews were introduced and explained. These results (broadly) support the results generated from the main data collection and analysis. The results suggest that managers/owners of firms understand the term profit maximization. Furthermore, the results suggest that businessmen think that profits and sales are strongly linked and that these businessmen may focus on short-run sales because they think this will result in long-run profit maximization. This may explain empirical and theoretical debates that suggest managers/owners of firms aim to maximize their sales, and not profits.

During the final section of this thesis the results of the data analysis undertaken were used to test the hypotheses constructed in the methodology chapter. This theory testing was then combined with the results of the theoretical debate undertaken in the opening chapters of this study and the quantitative data reported in the previous cheaper.

The results suggest that, although profit maximization is the dominant overriding objective of the owners/managers of firms, a significant number of the respondents to the survey did not aim to maximize their profits. Therefore, the neoclassical theory of the firm did not appear able to explain the actions of all economics agents.

Five hypotheses were used to test the managerial and behavioural theories of the firm. No significant relationship was found between the size of the firm (turnover), the number of employees in a firm, the level of competition in the industry, or the ownership structure of the firm and the likelihood of the manager or owner of a firm aiming to maximize profits.

The managerial theories (Baumol, 1959; Williamson, 1964; Marris, 1964) suggested that the managers of firms will not aim for a maximum level of profits if there is separation of ownership from control within the firm. This suggests managerially-controlled firms should be less likely to profit maximize than owner-controlled firms. No such relationship was found. Similarly, large firms were no more or less likely to profit maximise than small firms and the degree of competition was not a relevant factor either. Thus, the conclusion reached is that the three managerial theories of the firm fail to explain why some firms aim to maximize profits and others do not. However, the feeling remained that, even if the detail of these theories was wrong, the basic idea behind the theories had some merit. That is, if left to their own devices the managers of any firm may act in order to maximize their

own utility (and this is likely to be at the expense of the owners' utility).

Although the behavioural theories of the firm appear to have some merit and do receive some support from the primary data collected, a marginal majority of respondents claimed to aim for a satisfactory level of profit rather than a maximum level. The theoretical debate offers evidence that the behavioural theories cannot be considered as a replacement for the neoclassical theory of the firm. Indeed the behavioural approach offers a theory of *a* firm rather than a theory of *the* firm. The distinction being made is that the behavioural approach is not generalist, and in order to use it to gain a useful understanding of the behaviour of firms, we would have to examine a firm in detail. In contrast, the neoclassical theory of the firm offers a general, abstract theory that attempts to predict some basic behavioural traits that can be applied to all firms.

Furthermore, the behavioural theory assumes that all firms are large complex organisations and, as has already been explained, most firms in the UK or the world, are small firms that employee a handful of staff and not large public limited companies.

Up to this point in the seventh chapter the results of the data collection and analysis are broadly similar to the results from the previous studies undertaken to address these issues. Specifically, a significant number of firms aim to profit maximize. Also, a significant number of these firms do not. At best the study can only offer very limited, if any, support for the alternative theories of the firm. However, the methodology employed within this study utilises more appropriate techniques than the other studies. Therefore the results from this study should have a higher level of validity than the previously mentioned studies, however at this point it does not differ significantly from those studies.

The contribution which is made by this study is that the analysis does not end where that of the previous studies did. After identifying the weaknesses of the previous research undertaken to test the validity of the theories and the limitations of the alternative theories of the firm (Chapter Two) it was decided to attempt to combine the theory of the firm with the concept of corporate governance. Finally, in the penultimate chapter of this research report, two original hypotheses were tested that attempt to offer a new refined theory of the firm.

This newly advanced position is that the relevant factor when determining if an owner or a manager of a firm will aim for a maximum level of profits is the level of corporate governance within the firm's management structure. Specifically the shareholder theories of corporate governance appear to be compatible with the theory of the firm, and by combining

both concepts it is possible to offer a theory of the firm that is applicable to all firms regardless of other firm- or industry-specific variables. The hypothesis tested, that there is a link between the level of corporate governance and the likelihood of a firm demonstrating profit maximizing behaviour, cannot be rejected by the results generated from the probit estimations. Specifically, the data suggests a positive, statistically significant relationship between the level of corporate governance within a firm and a firm aiming to profit maximize. Therefore, the suggestion forwarded from the analysis section of this thesis is that firms do aim to maximize their profits, if they follow the wishes of the owners and not the managers. And the extent to which this will happen is not measured by the number of shareholders but by the level of corporate governance within the firm.

The results from the qualitative data collection generally support the main conclusions of the quantitative data analysis.

8.5 This Research in Context

Although the shareholder theory of corporate governance (Manne, 1965; Jensen and Mecking, 1976; Charkham 1994a, 1994bb and 1989; Sykes 1994) suggests that the aim of the managers of a firm is to maximize the returns to the owners of the firm (shareholder), this is the first time that these theories have been combined with the neoclassical theory of the firm to offer a testable hypothesis to explain the behaviour of all firms. The results from this study (that suggest that the factor that determines if the owner or manager of a firm will aim to profit maximize is the level of corporate governance) are applicable to all firms and are not limited by ownership type or indeed any other firm or industry-specific factors.

The results from the various analytical techniques employed during this research project reconfirm the validity of profit maximization as the primary business objective of a firm. The results also explain why some firms do not aim to profit maximize. We suggest that the thinking behind the managerial theories of the firm does have merit, that is to say that managers may act in order to maximize their own utility at the expense of their principals' utility, but only if they are allowed to by a weak corporate governance structure.

These results suggest that economists may still have confidence in their models that use profit maximization as their starting point, as long as they accept that not all firms will always aim to maximize their profits. Similarly, the basic ideas that underpin the traditional alternative theories of firm, that have been developed and used as the basis for new alternative theories (contact, agency etc), are also valid but need to be qualified. We can

not assume that the managers of joint stock firms are able to act in their own interest at the expense of the owners. In fact the development of agency theory and corporate governance theories has led to a greater understanding of the possible implication of the principal-agent relationship in this context. We are currently witnessing an increased level of interest in the governance of firms and this suggests that there will be less opportunity in the future for managers to maximize their own interest at the expense of the shareholders.

The two competing sets of theories (neoclassical and alternative theories of the firm) both have their part to play in explaining the behaviour of firms and it may be better to think of them as complementary theories as opposed to rivals. After all, the concept of profit maximization is an abstract approach that is applicable to all firms and the alternative theories of the firm are more specific to certain sub-groups and are more detailed in their approaches.

8.6 Limitations in this Research

A number of weaknesses in the methodology of this research have been identified in the forth and five chapters. By way of a brief recap, we can split these limitations into three main categories: survey problems, data problems and methodological issues. The very nature of economic research, which at its simplest is an attempt to explain the decision making of humans, means that any study cannot be free from weaknesses and limitations. Although every reasonable step has been taken to increase the reliability and validity of this research project, we must accept that various limitations still exist.

The survey upon which our analysis is based comprises returned questionnaires from 310 companies. Although this sample size compares favourably with the surveys utilized by Hall and Hitch (38), and Hornby (77), it is significantly smaller than the samples used by Shipley (728) and Jobber and Hooley (1778). When we consider that the sampling frame from which these samples have been chosen is 3.7m, it becomes apparent that we cannot be overconfident about how representative our samples are. The sample that was used to test for a link between corporate governance and the decision to profit maximize was 172. We attempted to limit any possible bias by generating a random sample of firms to survey, and the questionnaires were returned by a wide range of firms, from small firms employing one member of staff to large PLCs. However, even the fact that these firms chose to return the survey and others did not may build some bias into the results.

8.6.1 General Issues with the Use of a Survey

There are various issues and problems that arise from the use of postal questionnaires, and questionnaires in general. Although there are questions concerning the validity of responses from survey research generally, it is a widely used method within the social sciences (Collis and Hussey, 2003).

Some of the weaknesses identified in the use of survey techniques are limited by the use of a postal questionnaire. It is of paramount importance in any type of survey that each subject is asked the questions in exactly the same way, and this is simple to achieve when using a postal questionnaire. It is also important that each subject understands the questions in exactly the same way as the other subjects. Although the use of a postal questionnaire does not guarantee this, it does limit one of the problems in this area that can occur in the use of telephone and face-to-face interviews, namely the possibility that the interviewer may behave differently in each interview thus biasing the results. This is of course more likely to be an issue with an inexperienced interviewer such as a doctoral student.

There are, however, many types of surveys and it must be accepted that postal questionnaires have specific weaknesses that may not exist, to the same extent, in other forms of survey. The main problem concerning postal questionnaires is that we cannot be sure that the respondents understand the questions asked, or that they interpreted the questions in the manner that the researcher wants them to. Although this is actually the case for all surveys, including interviews, it is likely to be a more prevalent problem in postal questionnaires because there is no scope for a skilled interviewer to overcome or limit this problem (as there may be for a face-to-face interview or a telephone interview). Although the questionnaire was piloted before the main data collection and a number of face-to-face interviews were carried out afterwards, we cannot claim that every respondent interpreted the questions in the manner that was intended by the researcher.

Arguably, the most severe limitation with this study is the use of a survey to test a theory, and in particular to use survey results to determine the behaviour of firms.

The argument forwarded in this thesis is that it is not important how firms make decisions. The important factor is whether these decisions are taken with the aim of maximizing the firm's profits. Another argument, suggested by Friedman (1953), would be that the decisions taken, and the motivation for them, are completely irrelevant and that it is the outcome (profit maximization) that is relevant. Therefore one could forward an argument that using a questionnaire is not an ideal method to provide data concerning the validity of

profit maximization. This is because the results of a questionnaire can only tell us what a manager claims as his or her overriding objective, not what the outcome of their behaviour is.

However, we are interested in profit maximization as a business objective. That is to say, we are interested in the intentions of the managers of a firm and not the outcome of these decisions. If one were interested in the outcome then one would consider some measure of adjusted profit (e.g. Tobin's Q or Prate) to determine if a firm is a profit maximizer. However all these measures have their own weaknesses. For example, when we calculate Tobin's Q the market value of the firm will include investors' expectations of the firm's intangible assets and this will be valued in the numerator. However, it is only possible to directly measure the value of a firm's tangible assets and not its intangible assets. Therefore the value of intangible assets will not be included in the denominator (book value of assets). As a consequence of this, Tobin's Q is not fully reflective of the firm's position. Of course it is the same for all firms, but not all firms have the same ratio of tangible to intangible assets. Other performance measures also suffer from weaknesses. For example the accounting profit rate (Prate) is determined by accounting rules and regulations: therefore different methods of depreciating the value of assets will result in a higher or lower profit being reported.

This does not negate the criticism that we have used managers' claims concerning their behaviour to offer insight into the validity of a theory, that some would argue is about the actual outcomes and not the reported intention of the managers or owners of firms. However we could not use secondary data to address this issue because most, if not all, firms in the real world do not exhibit profit maximizing behaviour due to imperfect information, bounded rationality and other market imperfections. Therefore, following the definition of profit maximization as a business objective developed in the third chapter of this thesis, we are interested in whether firms attempt to maximize their profits and there is no secondary data available that can be used to answer this question adequately.

The use of quantitative surveys is a well-established method of data collection within the social sciences. There has been a long tradition of using closed questions that can be numerically coded to test hypotheses and therefore theories within the social sciences (McGiven, 2006). Indeed, as noted above, a number of previous researchers have used postal questionnaires to consider the issues under investigation in this study (Hall and Hitch, 1939; Lester, 1946; Skinner, 1970; Shipley, 1981; Jobber and Hooley, 1987; Hornby, 1994), the results of which have been published in well-regarded journals. Although there are limitations

concerning this approach, it is a well-established method within this field of study.

8.6.2 Item and Non-response Bias

The results from the study used within this project will only be valid as long as the sample is not biased and the respondents to the questionnaire answer in a truthful manner. It is difficult to offer guarantees concerning the honesty of the respondents to the questionnaire. A small number of follow-up interviews were conducted and these offer no reason to suspect that respondents may wish to offer an untruthful answer to the questions asked. It is also difficult to understand why anyone would feel the need to lie when responding to a postal questionnaire. A random sample was generated using a computer. Although a random sample is not necessarily a representative one, the central limit theorem and the law of large numbers allow us to be confident that it is the most likely method of achieving a representative sample. A response rate of 17.2% was achieved from the survey and a total of 310 responses have been used for the data analysis. There are two important sources of bias for postal questionnaires. Firstly there is the possibility of the result being biased by item non-response and secondly there is the more general non-response bias associated with surveys.

Item non-response is simple to detect as it would be demonstrated by the fact that respondents were failing to answer specific questions. Indeed the identification of item non-response is one of the main reasons for undertaking a pilot study in the first place. Respondents may decide not to answer questions that they do not know the answer to, or ones where the choice of possible answers does not reflect their feelings. Further to this, respondents may choose not to answer questions that they feel are inappropriate or that do not make sense to them. There has been no evidence of item non-response in the replies to this study. No question from the pilot study or main sample was left unanswered on a regular basis. This may be due to the fact that the questions were either straightforward in nature or where difficulty could arise (questions 1, 3a and 3b especially) respondents had the option to pick "a different objective not listed".

However, the lack of item non-response does not ensure a non-biased sample. It is possible that respondents who did not understand the questions, or had other issues with the questions asked, simply chose not to respond to the questionnaire. Further to this it could also be the case that due to non-response the sample used for the data analysis may not fully represent the characteristics of the chosen population. A random sample of 1,800 firms was

generated from the FAME database and although a random sample is not guaranteed to be free from bias it is the method that is most likely to result in a non-biased sample. However only 17.2% of the firms within this chosen sample responded to the questionnaire, therefore it is possible that the people who did respond are not typical of the whole population.

It is difficult to be certain about how representative the respondents to the survey are. A stratified sample was used to ensure that there were an adequate number of replies from owner-controlled firms and non-owner controlled firms and this objective was achieved. The 310 firms that have been used for our data analysis have an average turnover of 485,935.8 and an average number of employees of 2,942; the average turnover and employees, for the full sample of 1,800 is 480,046 and 2,901 respectively. A z-test confirms that there is no statistically significant difference between the sub-sample and main sample for these variables.

The limitation of using a survey as the method of data collection to test the behaviour of firms is accepted. The justification offered is that it was deemed to be the best of a number of flawed techniques. If resources (time and funding) were not scarce it would have been interesting, and appropriate, to have compared the results from the questionnaire-based research with some primary research concerning the actual performance of firms (secondary data is ambiguous on this issue). However, it was not possible to achieve this within the constraints mentioned above.

8.6.3 Other Issues with the Research

As well as trying to measure firms' aims and objectives, which in itself is not an exact science, we have also been interested in the level of corporate governance within a firm. Although the data provided by the FTSE ISS Corporate Governance Index is without doubt the most detailed data available in the UK (as it includes 63 separate variables that are used to calculate a firm's corporate governance rating) we have to accept that it is not perfect. This index measures 63 variables that act as a proxy for the level of corporate governance within a firm because the actual level is unobservable. The variable that was included in this study to classify firms as either being stakeholder firms or shareholder firms is also problematic. This is a complex area and to try to measure it using three questions in a questionnaire is without doubt difficult. This may account for the variable not being significant in hypothesis tests. It is possible that the significant issue here is the inclusion of such a variable and not its validity. Exploring the issues of stakeholdership may be a

first within this type of approach and may lead to others following in a similar path.

A further limitation of the research lies in the fact that of the seven hypotheses tested only one is consistently validated. That is to say there is consistently (in all three models) a statistically significant relationship between the decision to profit maximize and the value of the corporate governance index. It may have been more appropriate to construct a number of different hypotheses which tested for a link between profit maximization and a set of corporate governance mechanisms, e.g. we could have tested for a link between business objectives and the number of non-executive directors or the independence of the audit, remuneration and section committees. However this was not possible within the resources used for the study.

A number of cross-tabulations were carried out. Firms were split into four groups by their responses to question one in the questionnaire (profit maximizers, sales revenue maximizers, a combination of sales and revenue and a different objective not listed.) The result of these cross-tabulations are reported in appendix I. Unfortunately no statistically significant results have been found from this analysis. Although these results are disappointing, we are interested in factors that influence firms' business objectives and therefore they are the relevant factors. It would not be appropriate to attempt to find relationships between other sets of variables.

8.6.4 Limitations of Methodological Position

In clarification, the methodology that underpins this study is informed by the postpositivistic paradigm of inquiry. Postpositivism has been chosen as it is clearly an improvement on the limitations of positivism. As has previously been discussed during the methodology chapter of this thesis (Chapter Four), there are a number of limitations that arise from the use of positivism within social science research. If we consider the ontology of positivism, then we can conclude that the naïve realism that underpins this paradigm of inquiry introduces a number of problems for an economist, or more generally any social scientist; the idea that there is one knowable reality that can be understood by the researcher is not a tenable position for a social scientist to hold (Guba, 1990). If we accept that a realist ontology is inconsistent with the study of a social science, as clearly we can never fully understand the nature of reality by observing causal relationships between variables, then we must look for an alternative methodology that limits the lack of validity identified with positivism.

If we consider the development of neoclassical economics then we would conclude that it

was developed using positivism as a methodological framework. Neoclassical theory is the bedrock of positive economics, that is, a set of laws or rules that govern the behaviour of individuals and firms - the assumption being that, if left to their own devices, markets will tend towards equilibrium with the consequences for firms being profit maximization. However in the real world markets do not reach a point of equilibrium and it is unlikely that any firm actually achieves a maximum level of profit (assuming that firms want to and that we can actually define what is a maximum level of profit), due to imperfect information, bounded rationality and other market imperfections. Therefore it is not possible to observe actual profit maximizing behaviour as we cannot fully understand the reality of the situation. That is to say we cannot fully understand what the managers or owners of a firm hope to achieve by their actions by observing the results of these actions. Therefore we need to investigate the issues in more depth. Using postpositivism is an improvement on the ontological position of positivism as under this paradigm of inquiry we move from naïve realism to critical realism. That is we accept that, even if a certain reality did exist, it would not be possible for the researcher to fully comprehend or observe this reality. The awareness of the problem of understanding reality allows us to consider this issue when evaluating which research methods are appropriate for this study.

The positivist ontology leads the researcher towards an objective epistemology; if one certain observable reality exists then we can concern ourselves with measuring this reality objectively. Our concern is with the collection of value-free data and with making value-free judgements concerning this data (Annels, 1996). Clearly any secondary data collected to assess the extent of profit maximization in the real world are not value free, but are constructed using the principles and regulations that underpin subjects such as accounting and finance. We cannot claim that measures such a Prate or Tobin's Q are value-free measures. Rather, these measures have been influenced by theory and regulation within their subject area. Similarly the data collected for this study are not value free. The important research question that the survey considers is the extent to which firms profit maximize or not. This idea comes from neoclassical economic theory. It is not value-free data concerning the behaviour of firms that leads us to suggest that firms may be interested in profit maximization, it is economic theory that leads us to ask the managers of firms if they are aiming to profit maximize. Cleary this idea of a complete separation between the researcher and the research is not possible within economics. The researcher designs, conducts and interprets the findings of the research and their knowledge and experience will have an effect on research.

As discussed in the fourth chapter of this study, the epistemology of postpositivism is dualist, both subjective and objective. Researchers attempt to be objective but understand that their beliefs and knowledge will have an influence on the research, and an attempt is made to limit this (Guba and Lincoln, 1994). Therefore postpositivism is an improvement on the limitation of positivism; once we accept that there are epistemology limitations with our research methods we can attempt to limit these problems.

Positivism has become associated with the use of quantitative data that can be used in an attempt to accurately measure the phenomenon under investigation, where the researcher trades a high level of reliability for a low level of validity. When we use the positivistic paradigm of inquiry we concern ourselves with making sure that the data collected and the statistical methods used are appropriate. We undertake various tests on the data to make sure they are representative and we test our models looking for multicollinearity etc. However, less attention is paid to what the data collected actually measures. A postpositivistic approach to research forces the researcher to consider the validity as well as the reliability of their research. The methods chosen for this study were designed to limit the weakness discussed above. A postal questionnaire was used because the variable we wished to measure, profit maximization, is not observable in the real world. To try to overcome this issue a detailed definition of the meaning of profit maximization is set out in the third chapter of this thesis, where we define profit maximization as a business objective of the main decision makers within a firm. As a consequence of this definition we can measure the extent that decision makers claim to want to profit maximize and not the extent to which profit maximization occurs in practice, as the complexity of the environment, coupled with our own limited ability to understand knowledge, would mean that we are unable to observe profit-maximizing behaviour in the real world.

However we must accept that although postpostivism is an improvement on the limitations of positivism, problems still remain when this methodology is employed in the design of a research project. These issues concern our ability to understand and generate knowledge. Results generated from a research study that is informed by a postpositivistic paradigm of inquiry are still likely to suffer from a relatively low level of validity.

Denzin and Lincoln (2000) suggest that in order to ensure a high level of validity the researcher should consider a more phenomenological approach. These issues are debated in the fourth chapter and we recapitulate them briefly here.

Constructivism implies truth is a particular belief system held in a particular context.

That is reality exists but our understanding of it is imperfect. Within this paradigm the researcher and the research become infused and the results of the research are a process of this interaction.

Critical theory is a development of postpositivism where it is assumed that reality is shaped through historic process (Howell, 2004). It is accepted that it is impossible to fully understand reality and that the research will be subjective - that is, the researcher's values will influence the research.

Critical theory and other phenomenological paradigms of inquiry are mostly concerned with using qualitative data to try to understand more fully the issues under investigation (as opposed to looking for statistically significant relationships between variables). In terms of firm theory it could be argued this approach would be suited to the investigation of behavioural theories of the firm. Indeed these theories have been developed by researchers observing how decisions are made in actual businesses. It may be the case that the reason that the findings from this study can offer no support for these behavioural theories of the firm is that the methods employed are not appropriate for testing these types of theories. However, the main aim of this study is to consider profit maximization and the influence of corporate governance on business decisions. As a consequence the methods chosen were designed to test the behaviour of the senior decision maker within firms and not the interaction of all the individuals that make up a firm.

Results generated using critical theory and similar methodologies can be attacked for a lack of reliability and for producing findings that are not easily generalised. Due to the general nature of the issues under investigation in this study (the behaviour of the average firm) it was decided that a research methodology which could produce reliable generalisable results was key, and therefore the postpositivistic paradigm of inquiry was the most appropriate choice of for this study. However it is possible to address a lack of validity within a research project using postpositivism. In order to more fully understand the reality of the situation under investigation five, semi-structured, in-depth follow-up interviews were conducted. A particular area of interest here was the respondents' understanding of the term profit maximization. The validity of the measures used to measure profit maximization is central to the validity of the result from any study in this area. As previously explained, secondary measures looking at performance figures do not actually tell us if the decision makers in a firm were trying to maximize profit or not. Therefore, in common with a number of other studies in this area, we have used the replies from a postal questionnaire to classify

firms as profit maximizers or non-profit maximizers. However, we can only have confidence in the result if we are confident that the respondent to the questionnaire understood the questions asked, specifically the question concerning profit maximization. The results from the follow-up interviews are reported in the fifth chapter of this study and they confirm that we can be confident that the respondents to the questionnaire understood the term profit maximization. Although in-depth interviews were only conducted with five subjects, each subject displayed an understanding of profit maximization that is consistent with the definition developed within this thesis.

By grounding the study in the postpositivistic paradigm of inquiry we have focused on the reliability of the results and to some extent we may have had to accept a lower level of validity. The focus of this research is on theory testing and developing a reliable test of the relationships between basic variables; we have to ignore the complexity of human decision makers and attempt to treat them as homogeneous decision-making units. Although the aim of this study was to test theory and to advance new ideas at an abstract level, the complementary benefits of a more detailed approach are acknowledged. Although a small number of follow-up interviews were undertaken, a more detailed use of face-to-face interviews, group research and other qualitative techniques could offer valuable, complementary results, that could help us to better understand the motivation of and interaction between these economic agents. It was however possible to use similar questions to those of a number of the other postal surveys in this area (Skinner, 1970; Shipley, 1981; Jobber and Hooley, 1987; Hornby, 1994) and this allowed valid comparison to be made between this work and the previous studies.

8.6.5 Final Comments and Conclusion

The aim of managers and owners of businesses remains a key issue within microeconomics today. In this study an attempt has been made to correctly outline the competing theories of the firm, and to offer empirical evidence as to the validity of each of these theories. Although limitations within the research design have been identified and are freely acknowledged, we remain confident that the results we have presented are valid and the methods followed to generate these results are sound. The conclusions drawn from this project are that firms do indeed act as if they were the perfectly informed agents of neoclassical economic theory who aim for profit maximization as their overriding business objective, even though - in real life or ex post - their objectives may not necessarily move from this ambition into reality. However, this itself does not mean that the alternative theories of the firm have no merit. We

suggest that they are not competing or rival theories of the firm at all. Rather they should be considered as complementary theories that can coexist alongside profit maximization, and can offer an insight into the behaviour of managers of firms which suffer from a limited level of corporate governance. In conclusion, on the basis of the evidence provided, and in view of the overriding objective of a business at a time it was reported, our analysis cannot deny profit maximization its role as the primary goal or ambition of the firm.

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Appendix A: Postal Questionnaire

NAPIER UNIVERSITY
EDINBURGH

Business Objectives Survey: 2005

1) What objective is of overriding importance to your firm?

a) Maximizing profits.
b) Maximizing sales revenue.
c) A combination of high profits and high sales revenue.
d) A different objective not listed.

2) Taking account of all relevant factors, including the reactions of your competitors, could you at present (if you wanted to) increase your profits by changing your prices?

a) Yes
b) No

3a) What are your short term objectives?

a) Maximizing profits.
b) Maximizing sales revenue.
c) A combination of high profits and high sales revenue.
d) A different objective not listed.

3b) What are your long term objectives?

a) Maximizing profits.
b) Maximizing sales revenue.
c) A combination of high profits and high sales revenue.
d) A different objective not listed.

4) Would you say that you aim for a satisfactory level of profits or a maximum level of profits?

a) Satisfactory

b) Maximum

5) Do you own and directly control your own firm?

a) Yes
b) No

6) Is there a minimum amount of profit that you feel the company has to make? i.e., do you have a minimum profit constraint?

a) Yes
b) No

7) Are any members of your staff paid the national minimum wage?

a) Yes
b) No

8) Are all members of staff eligible for company benefits (e.g., entry to pension schemes, bonus schemes and share options)?

a) Yes
b) No

9) Does your firm give financial support to the local community (e.g. sponsorship, charitable donations)?

a) Yes
b) No

Would you be willing to participate in follow up telephone or face-to-face interviews?

Yes/No

Return to Kenneth Crossan, Napier University, Craiglockhart Campus, Edinburgh, EH14 1DJ

Appendix B: Cover Letter

Dear Sir,

I am requesting your cooperation in completing the enclosed survey of firms trading in the UK. The survey should not take longer than ten minutes to complete. Without your help, which is greatly appreciated, it will not be possible to complete this research project.

The information obtained from this survey will be used as part of my on-going research. I am interested in the relevance of economic theory to businesses. Students at most business schools are taught basic economic theory, but does this basic theory correspond with business practice?

The confidentiality of the data you provide is guaranteed. The survey findings will be published without reference to any individual firm. Copies of the findings are available on request.

Please return your completed questionnaire in the enclosed pre-paid envelope as soon as possible. If you have any questions concerning the questionnaire, please contact me by phone or e-mail.

Thank you for your time.

Yours Sincerely,

Kenneth Crossan
Senior Lecturer in Economics
Ashcroft International Business School
APU
Cambridge
01223-363271-2218
k.crossan@apu.ac.uk

Appendix C: Corporate Governance Variables

Board

1	Board Composition
2	Nominating Committee
3	Compensation Committee
4	Governance Committee
5	Board Structure
6	Board Size
7	Changes In Board Size
8	Cumulative Voting
9	Boards Served On - CEO
10	Boards Served On - Other Than CEO
11	Former CEO's
12	Chairman/CEO Separation
13	Governance Guidelines
14	Response To Shareholder Proposals
15	Board Attendance
16	Board Vacancies
17	Related Party Transactions - CEO
18	Related Party Transactions - Other than CEO

Audit

19	Audit Committee
20	Audit Committee - Financial Experts
21	Audit Fees
22	Auditor Ratification

Charter/Bylaws

23	Poison Pill Adoption
24-28	Features of Poison Pills
29	Vote Requirements - Charter/Bylaw amendments
30	Vote Requirements - Approval of Mergers
31	Written Consent
32	Special Meetings
33	Board Amendments
34	Capital Structure - Dual Class
35	Capital Structure - Blank Check Preferred

State of Incorporation

36-42	State Anti-takeover Provisions

Executive and Director Compensation

43	Cost of Option Plans
44	Option Re-pricing Permitted in Plan?
45	Shareholder Approval of Option Plans
46	Compensation Committee Interlocks
47	Director Compensation
48	Option Expensing
49	Option Burn Rate
50	Performance Based Compensation

Qualitative Factors

51	Board Performance Reviews
52	Individual Director Performance Reviews
53	Meetings of Outside Directors
54	CEO Succession Plan
55	Directors Resign Upon Job Change
56	Outside Advisors Available to Board

Ownership

57	Director Ownership
58	Executive Stock Ownership Guidelines
59	Director Stock Ownership Guidelines
60	Officer and Director Stock Ownership
61	Mandatory Holding Period for Options
62	Mandatory Holding Period for Restricted Stock

Director Education

63	Director Education

Appendix D: Invitation to be Interviewed Letter

Dear Sir,

I would like to thank you for completing the mailed questionnaire that I posted to you in May 2005. You indicated, on your returned questionnaire, that you would be willing to take part in a follow up interview.

These interviews should last, no more than twenty minutes. The aim of these interviews is to gain an understanding into how you interpreted the questions in the original questionnaire.

If you are willing to take part in an interview, sometime over the next two or three months, please e-mail and confirm this. We can then arrange a data and time for me to come to your work (or an alternative convenient address) to undertake the interview.

P.S. I have recently changed employer. I am now employed at Napier University in Edinburgh.

Yours Sincerely,

Kenneth Crossan
Lecturer in Economics
Napier University Business School
Napier University
Edinburgh
0131-445-4450
k.crossan@napier.ac.uk

Appendix E: Business objective interviews

Section one: Profit Maximization

1) What do you understand by the term profit maximization?

Machlupian or Exact model of pricing
Respondent did not understand the term

2) Is your firm interested in a combination of sales and profits?

Yes No

3) How strongly do you think profits and sales are linked?

Very strongly Not at all
5 4 3 2 1

4) Are your long-run and short-run objectives the same?

Yes No

5) Could you at present, taking into account all other factors, change your price and increase your profits?

Yes No

6) If yes to Q5 why do you not do this?

Section Two: Shareholder/Stakeholder

7) Shareholder/owners are the only group of people I consider when making business decision.

Strongly Agree Strongly disagree

5 4 3 2 1

8) What other groups do you consider when making decisions?

Employees local community others

9) Do you have to consult/ consider other shareholders interests when you make business decisions?

Yes No

10) Do you own a majority of the shares in this firm?

Yes No

11) I am good boss/manager so that my employees will work hard and make me more money/ look better

Strongly Agree Disagree

5 4 3 2 1

Appendix F: Pilot study Results

Variables	*All Variables*	*Without Employ/CR3*	*Without Fsize/CR3*
Constant	-.34872	-.36670	-.37545
	(-1.1790)	(-1.4367)	(-1.4692)
Fsize	-.3585E-7	-.6732E-7	---
	(-.4399)	(-1.1100)	
Owner	-.06426	.07421	.06384
	(.2862)	(.3330)	(.2846)
Employ	-.6931E-5	---	-.1403E-4
	(-.3802)		(-1.1718)
CR3	.00476	---	---
	(.1506)		
CR5	.00174	.00583	.00615
	(.0597)	(1.1066)	(1.1570)
SH	-.00326	-.01204	.01942
	(-.0122)	(-.0462)	(.0740)
Pseudo R^2	.017795	.016993	.016719
Log Likelihood	-107.3549	-107.4426	-107.4724

Number of observations: 159
T-statistics in parentheses

Variable	Mean
Decision to profit maximise (Y)	.4465
Turnover (Fsize)	735804.6
Ownership status (Owner)	.2893
Number of employees (Employ)	4163.7
Concentration ratios/3 largest firms (CR3)	34.097
Concentration ratios/5 largest firms (CR5)	42.534
Stakeholder/shareholder status (SH)	.1824

Correlation Matrix across all Variables

	Y	**Fsize**	**Owner**	**Employ**	**CR3**	**CR5**	**SH**
Y	1.0000	-.1054	.0407	-.0980	.0712	.0657	.0016
Fsize	-.1054	1.0000	-.1175	.9490	.1290	.1561	-.0248
Owner	.0407	-.1175	1.0000	-.1215	-.0232	-.0426	.0578
Employ	-.0980	.8490	-.1215	1.0000	.1492	.1900	.0161
CR3	.0712	.1290	-.0232	.1492	1.0000	.9825	.0717
CR5	.0657	.1561	-.0426	.1900	.9825	1.0000	.0416
SH	.0016	-.0248	.0578	.0161	.0717	.0416	1.0000

Appendix G: Data Sets 1and 2

Data set 1:

y	Fsize	Owner	Employ	SH	Micro	Small	Medium	Large	Very Large
0	12835	1	89	1	0	0	1	0	0
0	5535	0	116	0	0	0	1	0	0
1	4073	1	85	0	0	0	1	0	0
0	13732	1	85	1	0	0	1	0	0
1	10855	0	84	0	0	0	1	0	0
1	1518	1	78	0	0	0	1	0	0
1	7274	1	76	1	0	0	1	0	0
1	3169	1	50	0	0	0	1	0	0
0	6544	0	75	0	0	0	1	0	0
0	13921	1	75	0	0	0	1	0	0
0	8967	0	72	0	0	0	1	0	0
1	19437	0	67	0	0	0	1	0	0
0	11193	1	85	0	0	0	1	0	0
0	9191	1	76	0	0	0	1	0	0
1	13142	0	70	0	0	0	1	0	0
1	4618	1	65	0	0	0	1	0	0
0	7514	0	65	0	0	0	1	0	0
0	31471	1	409	0	0	0	0	1	0
1	12202	1	359	1	0	0	0	1	0
0	33042	0	327	0	0	0	0	1	0
0	19756	0	320	1	0	0	0	1	0
0	29420	0	340	0	0	0	0	1	0
0	99821	0	309	1	0	0	0	1	0
0	22443	1	308	0	0	0	0	1	0
1	80554	0	295	0	0	0	0	1	0
0	26901	0	293	0	0	0	0	1	0
1	16	1	2	1	1	0	0	0	0
1	86678	0	321	0	0	0	0	1	0
0	20257	0	250	0	0	0	0	1	0
0	7701	0	248	0	0	0	1	0	0
0	8874	1	247	1	0	0	1	0	0
0	31339	0	246	0	0	0	1	0	0
1	17171	0	241	0	0	0	1	0	0
1	22712	1	137	0	0	0	1	0	0
0	4122	1	124	0	0	0	1	0	0
1	25642	1	124	0	0	0	1	0	0
0	12644	1	120	0	0	0	1	0	0
1	21159	1	117	0	0	0	1	0	0
1	28529	0	112	0	0	0	1	0	0
1	10922	1	110	0	0	0	1	0	0
0	8036	0	122	0	0	0	1	0	0
0	12823	1	136	0	0	0	1	0	0
1	29380	1	104	0	0	0	1	0	0
1	39062	1	104	0	0	0	1	0	0
1	39339	0	116	1	0	0	1	0	0

0	12415	0	98	0	0	0	1	0	0
1	34682	1	105	0	0	0	1	0	0
0	3347	1	96	0	0	0	1	0	0
0	10888	1	91	1	0	1	0	0	0
0	4462	1	18	1	0	1	0	0	0
1	1602	1	19	0	0	1	0	0	0
0	608	1	15	0	0	1	0	0	0
1	1198	1	15	1	0	1	0	0	0
0	224	1	9	0	0	1	0	0	0
1	8908	1	14	0	0	1	0	0	0
0	2441	0	13	0	0	1	0	0	0
0	7802	0	17	0	0	1	0	0	0
0	9500	0	14	0	0	1	0	0	0
0	2141	0	12	0	0	1	0	0	0
1	1255	0	2	0	1	0	0	0	0
1	558	1	10	0	0	1	0	0	0
0	449	1	8	0	1	0	0	0	0
1	1920	1	8	0	1	0	0	0	0
0	7592	0	8	0	1	0	0	0	0
0	2393	1	7	0	1	0	0	0	0
0	2402	0	5	0	1	0	0	0	0
0	39	1	1	0	1	0	0	0	0
0	39	1	1	1	1	0	0	0	0
1	653	0	4	0	1	0	0	0	0
1	458800	0	5095	0	0	0	0	0	0
1	489168	0	3340	0	0	0	0	0	1
1	439500	0	3092	0	0	0	0	0	1
1	479183	0	4424	0	0	0	0	0	1
0	385000	0	789	0	0	0	1	0	1
1	290091	0	2049	0	0	0	0	0	1
1	330071	0	861	0	0	0	0	1	0
0	337000	0	585	0	0	1	0	1	0
0	319669	0	2678	0	0	0	0	0	1
0	308264	0	5207	1	0	0	0	0	0
0	281557	0	1817	0	0	0	0	0	1
0	220965	0	606	0	0	0	0	1	0
1	201200	0	900	1	0	0	0	1	0
0	198050	0	6057	0	0	0	0	0	0
1	211273	0	1954	0	0	0	0	0	1
0	185400	0	1550	0	0	0	1	0	1
1	186843	0	643	1	0	0	1	1	0
1	104936	0	254	0	0	0	0	1	0
1	177108	0	16	0	0	1	0	0	0
0	169080	0	504	0	0	0	0	1	0
1	155749	0	558	0	0	0	0	1	0
1	190165	0	12334	1	0	0	0	0	0
0	152897	0	774	0	0	0	0	1	0
0	229470	0	1849	0	0	0	0	0	1
0	162517	0	683	0	0	0	0	1	0
1	139503	0	959	0	0	0	0	1	0
0	225256	0	147	0	0	0	1	0	0

0	140375	0	198	0	0	0	1	0	0
0	169924	0	2525	0	0	0	0	0	1
1	115312	0	972	0	0	0	0	1	0
1	98500	0	711	0	0	0	0	1	0
1	108013	0	1167	0	0	0	0	0	1
0	108013	0	1167	0	0	0	0	0	1
1	104703	0	682	0	0	0	0	1	0
0	103410	0	1766	0	0	0	0	0	1
0	100500	0	612	0	0	0	0	1	0
0	97566	0	1292	0	0	0	0	0	1
1	95701	0	594	0	0	0	0	1	0
0	90007	0	76	0	0	0	1	0	0
1	107120	0	1475	0	0	0	0	0	1
1	92074	0	309	0	0	0	0	1	0
0	73154	0	682	0	0	0	0	1	0
0	82658	0	1084	0	0	0	0	0	1
1	102947	0	680	0	0	0	0	1	0
0	77844	0	503	0	0	0	0	1	0
1	92321	0	190	1	0	0	1	0	0
0	65709	0	350	0	0	0	0	1	0
0	65299	0	1597	1	0	0	0	0	1
0	62690	0	1270	1	0	0	0	0	1
0	64262	0	378	0	0	0	0	1	0
1	66883	0	1145	0	0	1	0	0	1
0	4846	0	42	0	0	1	0	0	0
1	4132	0	8	0	1	0	0	0	0
0	12234	0	170	1	0	0	1	0	0
1	3774	0	72	0	0	0	1	0	0
0	4501	0	30	1	0	1	0	0	0
0	7881	1	112	0	0	0	1	0	0
1	7003	0	151	0	0	0	1	0	0
0	6740	0	34	0	0	1	0	0	0
0	6199	0	50	1	0	1	1	0	0
1	7274	1	76	1	0	1	1	0	0
0	7514	0	65	1	0	0	1	0	0
0	8949	0	40	0	0	1	0	0	0
1	7566	0	81	0	0	0	1	0	0
1	19936	0	67	0	0	0	1	0	0
1	7963	1	4	0	1	0	0	0	0
1	5553	1	46	0	0	1	0	0	0
1	12951	0	125	0	0	0	1	0	0
1	4202	1	36	0	0	1	0	0	0
1	12217	0	108	1	0	0	1	0	0
0	14108	0	87	0	0	0	1	0	0
0	8686	1	206	0	0	0	1	0	0
1	12544	1	18	0	0	1	0	0	0
0	5683	0	23	0	0	1	0	0	0
1	7498	0	55	0	0	0	1	0	0
1	14089	0	151	0	0	0	1	0	0
1	6335	0	79	0	0	1	1	0	0
0	0.25	1	1	0	1	0	0	0	0

1	6000	1	6	0	1	0	0	0	0
0	34133000	1	57378	0	0	0	0	0	0
0	33974000	0	242980	0	0	0	0	0	0
0	7655600	0	58712	1	0	0	0	0	0
0	8301500	1	70101	0	0	0	0	0	0
1	5694000	0	12347	0	0	0	0	0	0
0	3959100	0	28315	0	0	0	0	0	0
1	3464300	0	24500	1	0	0	0	0	0
1	2855200	0	34092	1	1	0	0	0	0
0	1759600	0	12823	0	0	0	0	0	0
1	2349600	0	13915	0	0	0	0	0	0
0	2253900	0	15935	0	0	0	0	0	0
1	719482	1	31	1	0	1	0	0	0
1	288609	0	778	1	0	0	0	1	0
0	248637	1	149	1	0	0	1	0	0
0	235048	0	721	1	0	0	0	1	0
1	231793	1	3	1	1	0	0	0	0
1	230227	1	1062	1	0	0	0	0	1
0	185784	1	1879	1	0	0	0	0	1
1	179829	1	454	0	0	0	0	1	0
0	179203	0	468	0	0	0	0	1	0
0	177245	1	64	1	0	0	1	0	0
1	144128	1	38	1	0	1	0	0	0
1	140954	0	701	1	0	0	0	1	0
0	130902	1	425	1	0	0	0	1	0
1	129567	1	2	1	1	0	0	0	0
1	123885	1	232	1	0	0	1	0	0
0	121992	1	293	1	0	0	0	1	0
0	120227	0	1464	1	0	0	0	0	1
1	96633	0	2289	0	0	0	0	0	1
0	96290	1	349	0	0	0	0	1	0
1	94611	1	264	1	0	0	0	1	0
1	93788	1	432	1	0	0	0	1	0
0	87959	1	152	1	0	0	1	0	0
0	85975	1	441	1	0	0	0	1	0
0	85470	1	1186	1	0	0	0	0	1
0	84336	1	496	1	0	0	0	1	0
0	72622	1	6	1	1	0	0	0	0
1	72320	1	248	1	0	0	1	0	0
1	71114	1	1052	0	0	0	0	0	1
1	70393	1	1026	1	0	0	0	0	1
1	70166	1	342	1	0	0	0	1	0
0	69710	1	497	0	0	0	0	1	0
1	69083	1	141	0	0	0	1	0	0
0	67435	1	1076	1	0	0	0	0	1
0	66797	0	174	1	0	0	1	0	0
1	66553	1	567	1	0	0	0	1	0
1	66261	1	8	1	1	0	0	0	0
0	65883	1	563	1	0	0	0	2	0
0	64640	1	28	1	0	1	0	0	0
0	63319	1	174	1	0	0	1	0	0

1	61098	0	182	1	0	0	1	0	0
1	59682	0	111	1	0	0	1	0	0
1	58810	1	279	0	0	0	0	1	0
0	57697	0	387	0	0	0	0	1	0
1	57026	1	288	1	0	0	0	1	0
0	55621	1	113	0	0	0	1	0	0
0	54693	1	206	0	0	0	1	0	0
0	54008	1	399	0	0	0	0	1	0
0	53708	1	115	1	0	0	1	0	0
1	53418	0	154	1	0	0	1	0	0
1	53267	1	173	1	0	0	1	0	0
1	52658	1	214	1	0	0	1	0	0
0	51186	0	492	1	0	0	0	1	0
0	51040	1	612	1	0	0	0	1	0
1	50243	1	249	1	0	0	1	0	0
0	49990	0	13	1	0	1	0	0	0
0	49577	0	361	1	0	0	0	1	0
0	49166	1	49	1	0	1	0	0	0
0	48901	1	3	1	1	0	0	0	0
0	48630	1	97	1	0	0	1	0	0
0	48549	0	160	1	0	0	1	0	0
1	48015	0	88	1	0	0	1	0	0
1	47006	1	22	1	0	1	0	0	0
1	46887	0	160	1	0	0	1	0	0
0	46717	1	286	1	0	0	0	1	0
1	45745	1	406	1	0	0	0	1	0
1	44974	0	845	1	0	0	0	1	0
0	44828	0	397	1	0	0	0	1	0
1	44600	0	122	1	0	0	1	0	0
0	44334	0	4332	1	0	0	0	0	1
1	43671	1	148	1	0	0	1	0	0
0	43242	1	831	1	0	0	0	1	0
0	43198	1	312	1	0	0	0	1	0
1	42759	1	274	1	0	0	0	1	0
1	42646	1	321	1	0	0	0	1	0
0	42412	1	1330	1	0	0	0	0	1
1	42267	1	227	0	0	0	1	0	0
1	41440	1	602	1	0	0	0	1	0
1	41174	0	67	1	0	0	1	0	0
1	41160	1	309	1	0	0	0	1	0
1	40743	0	517	1	0	0	0	1	0
1	40712	1	422	0	0	0	0	1	0
1	40503	1	237	1	0	0	1	0	0
1	39768	0	108	1	0	0	1	0	0
1	39763	1	569	0	0	0	0	0	0
0	39749	1	25	0	0	1	0	0	0
1	39701	1	731	0	0	0	0	1	0
1	39535	1	504	1	0	0	0	1	0
1	39202	1	815	0	0	0	0	1	0
1	38913	1	95	0	0	0	1	0	0
1	38734	1	102	1	0	0	1	0	0

0	38517	1	211	1	0	0	1	0	0
1	38409	0	286	1	0	0	0	1	0
1	38261	1	1960	0	0	0	0	0	1
1	37556	1	6	1	1	0	0	0	0
1	37452	0	139	1	0	0	1	0	0
0	37429	1	52	1	0	0	1	0	0
0	37299	1	401	0	0	0	0	1	0
0	36951	1	22	1	0	1	0	0	0
1	36921	1	39	1	0	1	0	0	0
0	36814	0	405	1	0	0	0	1	0
1	36397	1	474	1	0	0	0	1	0
1	36122	0	90	1	0	0	1	0	0
0	1828600	0	9385	1	0	0	0	0	0
0	1800200	0	32882	1	0	0	0	0	0
1	1669800	0	19651	1	0	0	0	0	0
1	1614400	0	15145	1	0	0	0	0	0
0	1514600	0	12056	1	0	0	0	0	0
0	1255100	0	2188	1	0	0	0	0	1
0	1248500	0	7866	1	0	0	0	0	0
0	1224900	0	18982	1	0	0	0	0	0
1	1214020	0	3869	1	0	0	0	0	1
1	1092571	0	2020	1	0	0	0	0	1
1	955000	0	13775	1	0	0	0	0	0
1	879000	0	8741	0	0	0	0	0	0
0	760000	0	9088	1	0	0	0	0	0
0	739350	0	7777	1	0	0	0	0	0
1	734784	0	4977	1	0	0	0	0	1
0	695300	0	2941	1	0	0	0	0	1
0	687498	0	1972	1	0	0	0	0	1
1	664600	0	892	1	0	0	0	1	0
0	649600	0	6553	0	0	0	0	0	0
1	159600	0	2479	1	0	0	0	0	1
0	126736	0	2214	0	0	0	0	0	1
0	119532	0	2044	1	0	0	0	0	1
0	118665	0	1689	1	0	0	0	0	1
1	114438	0	1113	0	0	0	0	0	1
1	113570	0	1503	1	0	0	0	0	1
0	104821	0	358	1	0	0	0	1	0
1	101161	0	22	1	0	1	0	0	0
1	119496	0	197	0	0	0	1	0	0
1	88073	0	524	1	0	0	0	1	0
0	83712	0	168	1	0	0	1	0	0
0	83006	1	111	1	0	0	1	0	0
1	74868	0	1289	1	0	0	0	0	1
0	71891	0	1551	1	0	0	0	0	1
1	68770	0	747	1	0	0	0	1	0
1	67342	0	267	1	0	0	0	1	0
1	66800	0	291	1	0	0	0	1	0
1	66323	0	644	1	0	0	0	1	0
1	66267	0	457	1	0	0	0	1	0
0	66213	0	1055	0	0	0	0	0	1

1	65910	0	463	0	0	0	0	1	0
1	65261	0	551	1	0	0	0	1	0
0	64568	0	570	1	0	0	0	1	0
1	62809	0	719	1	0	0	0	1	0
0	62504	0	221	1	0	0	1	0	0
0	59768	0	485	1	0	0	0	1	0
1	59544	0	855	0	0	0	0	1	0
0	55859	0	1239	1	0	0	0	0	1
0	53182	0	787	1	0	0	0	1	0
0	52602	0	544	1	0	0	0	1	0

Data Set 2: Corporate Governance Data

Y	Fsize	Owner	Employ	SH	CG
0	12835	1	89	1	100
1	4073	1	85	0	100
0	13732	1	85	1	100
1	1518	1	78	0	100
1	7274	1	76	1	100
1	3169	1	50	0	100
1	4618	1	65	0	100
0	31471	1	409	0	100
1	12202	1	359	1	100
0	22443	1	308	0	100
1	16	1	2	1	100
0	8874	1	247	1	100
1	22712	1	137	0	100
0	4122	1	124	0	100
1	25642	1	124	0	100
0	12644	1	120	0	100
1	21159	1	117	0	100
0	12823	1	136	0	100
1	29380	1	104	0	100
1	39062	1	104	0	100
1	1602	1	19	0	100
0	608	1	15	0	100
1	1198	1	15	1	100
0	224	1	9	0	100
1	8908	1	14	0	100
1	558	1	10	0	100
0	449	1	8	0	100
1	1920	1	8	0	100
1	458800	0	5095	0	95.9
1	489168	0	3340	0	87

1	439500	0	3092	0	93
1	479183	0	4424	0	91.9
0	385000	0	789	0	79.6
1	290091	0	2049	0	86.1
0	337000	0	585	0	65.4
0	319669	0	2678	0	66.5
0	308264	0	5207	1	87.2
0	281557	0	1817	0	81
1	201200	0	900	1	82.6
1	211273	0	1954	0	92.8
0	185400	0	1550	0	87.5
1	186843	0	643	1	90.7
1	104936	0	254	0	78
0	152897	0	774	0	86.2
0	229470	1	1849	0	93.4
1	139503	0	959	0	74.8
0	225256	0	147	0	80.9
0	169924	0	2525	0	81.9
1	98500	0	711	0	74.5
0	100500	0	612	0	83.6
0	82658	0	1084	0	94.9
0	7881	1	112	0	100
0	7514	0	65	1	100
1	7963	1	4	0	100
1	5553	1	46	0	100
1	4202	1	36	0	100
0	8686	1	206	0	100
1	12544	1	18	0	100
0	0.25	1	1	0	100
1	6000	1	6	0	100
0	34133000	0	57378	0	88.7
0	33974000	0	242980	0	87.7
0	7655600	0	58712	1	96.9
0	8301500	0	70101	0	96.8
0	3959100	0	28315	0	89.3
1	3464300	0	24500	1	86.5
1	2855200	0	34092	1	89.2
0	1759600	0	12823	0	90
1	2349600	0	13915	0	95.6
0	2253900	0	15935	0	98.1
1	719482	1	31	1	100
0	248637	1	149	1	100
1	231793	1	3	1	100
1	230227	1	1062	1	100
0	185784	1	1879	1	100
1	179829	1	454	1	100
0	177245	1	64	0	100
1	144128	1	38	1	100

0	130902	1	425	1	100
1	129567	1	2	1	100
1	123885	1	232	1	100
0	121992	1	293	1	100
0	96290	1	349	0	100
1	94611	1	264	0	100
1	93788	1	432	1	100
0	87959	1	152	1	100
0	85975	1	441	1	100
0	85470	1	1186	1	100
0	84336	1	496	1	100
0	72622	1	6	1	100
1	72320	1	248	1	100
1	71114	1	1052	1	100
1	70393	1	1026	0	100
1	70166	1	342	1	100
0	69710	1	497	1	100
1	69083	1	141	0	100
0	67435	1	1076	0	100
1	66553	1	567	1	100
1	66261	1	8	1	100
0	65883	1	563	1	100
0	64640	1	28	1	100
0	63319	1	174	1	100
1	58810	1	279	1	100
1	57026	1	288	0	100
0	55621	1	113	1	100
0	54693	1	206	0	100
0	54008	1	399	0	100
1	53267	1	173	1	100
1	52658	1	214	1	100
0	51040	1	612	1	100
1	50243	1	249	1	100
0	49166	1	49	1	100
0	48901	1	3	1	100
0	48630	1	97	1	100
1	47006	1	22	1	100
0	46717	1	286	1	100
1	45745	1	406	1	100
1	43671	1	148	1	100
0	43242	1	831	1	100
0	43198	1	312	1	100
1	42759	1	274	1	100
1	42646	1	321	1	100
0	42412	1	1330	1	100
1	42267	1	227	1	100
1	41440	1	602	0	100
1	41160	1	309	1	100

1	40712	1	422	1	100
1	40503	1	237	0	100
1	39763	1	569	1	100
0	39749	1	25	0	100
1	39701	1	731	0	100
1	39535	1	504	0	100
1	39202	1	815	1	100
1	38913	1	95	0	100
1	38734	1	102	0	100
0	38517	1	211	1	100
1	38261	1	1960	1	100
1	37556	1	6	0	100
0	37429	1	52	1	100
0	37299	1	401	1	100
0	36951	1	22	0	100
1	36921	1	39	1	100
1	36397	1	474	1	100
0	1828600	0	9385	1	94.3
1	1669800	0	19651	1	92.4
1	1614400	0	15145	1	76.2
0	1514600	1	12056	1	86.7
0	1255100	0	2188	1	85.3
0	1248500	0	7866	1	84.7
0	1224900	0	18982	1	79.3
1	1214020	0	3869	1	72.5
1	1092571	0	2020	1	70.2
1	955000	0	13775	1	87.1
1	879000	0	8741	1	98.9
0	760000	0	9088	0	70.2
0	739350	0	7777	1	91
1	734784	0	4977	1	82.9
0	695300	0	2941	1	93.2
0	687498	0	1972	1	91.4
1	664600	0	892	1	92.8
0	649600	0	6553	1	74.6
1	159600	0	2479	0	100
0	126736	0	2214	1	69.2
0	118665	0	1689	1	70.7
1	114438	0	1113	1	93.1
1	101161	0	22	1	82.9
0	83712	0	168	1	73.7
1	62809	0	719	1	91.5
0	59768	0	485	1	84.2
1	59544	0	855	1	82.4
1	119496	0	197	1	100
1	88073	0	524	0	100

Appendix H: Probit Results with Alternative Variables

Probit model with CR3
Dependent variable is Y
310 observations used for estimation from 1 to 310

Regressor	Coefficient	T-Ratio[Prob]
C	.011137	.0511 [.959]
FSIZE	-.2336E-7	-.34547[.730]
OWNER	.093526	.62472[.533]
EMPLOYEE	-.1112E-4	-.67021[.503]
CR3	-.0025235	-.10453[.917]
SH	.052813	.36064 [.719]

Maximized value of the log-likelihood function =-212.5011
Pseudo-R-Squared = .011021

Probit Model with MarketShare Variable

Dependent variable is Y
310 observations used for estimation from 1 to 310

Regressor	Coefficient	T-Ratio[Prob]
C	.021731	.11516[.908]
OWNER	.087049	.58576[.558]
EMPLOYEE	-.1521E-4	-1.3793[.169]
MS	-.0013983	-.39335[.694]
SH	.055143	.38311[.702]

Maximized value of the log-likelihood function =-212.5728
Pseudo-R-Squared = .010687

Probit model with HH Index

Dependent variable is Y
310 observations used for estimation from 1 to 310

Regressor	Coefficient	T-Ratio[Prob]
C	.023568	.12499[.901]
FSIZE	-.6677E-7	-1.1505[.251]
OWNER	.10492	.70759[.480]
HH	-.0017060	-.48350[.629]
SH	.041427	.28825[.773]

Maximized value of the log-likelihood function =-212.7147

Pseudo-R-Squared = .010027

Probit model with PLC variable

Probit Maximum Likelihood Estimation

Dependent variable is Y
310 observations used for estimation from 1 to 310

Regressor	Coefficient	T-Ratio[Prob]
C	-2.8902	-1.7864[.076]
FSIZE	-.1963E-6	-1.6056[.110]
PLC	-.46057	-1.2336[.219]
CR3	.0014800	.0075089[.994]
SH	.035403	1.8620[.064]

Maximized value of the log-likelihood function =-113.5094
Pseudo-R-Squared = .039473

Appendix I: Logit Results

Corporate Governance Logit Model

Logit Maximum Likelihood Estimation
The estimation method converged after 7 iterations
Dependent variable is Y
171 observations used for estimation from 1 to 171

Regressor	Coefficient	T-Ratio[Prob]
C	-4.6780	-1.7523[.082]
FSIZE	-.4944E-6	-.74146[.459]
OWNER	-.74186	-1.2130[.227]
CR5	.2286E-4	.28743[.774]
SH	-.0014594	-.0045992[.996]
CG	.057292	1.8261[.070]

Maximized value of the log-likelihood function =-113.4801
Pseudo-R-Squared = .039722

Logit Maximum Likelihood Estimation
The estimation method converged after 5 iterations

Dependent variable is Y
310 observations used for estimation from 1 to 310

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
C	.044586	.30190	.14769[.883]
FSIZE	-.3773E-7	.1202E-6	-.31391[.754]
OWNER	.14851	.23906	.62123[.535]
EMPLOY	-.1701E-4	.2692E-4	-.63205[.528]
CR5	-.0025311	.0056990	-.44413[.657]
SH	.079502	.23098	.34419[.731]

Maximized value of the log-likelihood function =-212.5258

Pseudo-R-Squared = .010906

Logit Maximum Likelihood Estimation
The estimation method converged after 5 iterations

Dependent variable is Y
310 observations used for estimation from 1 to 310

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
C	.032173	.27824	.11563[.908]
FSIZE	-.3665E-7	.1198E-6	-.30585[.760]
OWNER	.14937	.23884	.62541[.532]
EMPLOY	-.1745E-4	.2685E-4	-.65000[.516]
CR3	-.0028137	.0062510	-.45012[.653]
SH	.082220	.23092	.35605[.722]

Pseudo-R-Squared = .010919

Logit Maximum Likelihood Estimation
The estimation method converged after 5 iterations

Dependent variable is Y
310 observations used for estimation from 1 to 310

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
C	.29728	.29284	1.0152[.311]
FSIZE	-.4463E-7	.1250E-6	-.35707[.721]
OWNER	.17166	.23813	.72087[.472]
EMPLOY	-.1326E-4	.2616E-4	-.50662[.613]
CR3	-.021019	.012466	-1.6861[.093]
HH	.4929E-3	.2961E-3	1.6649[.097]

Maximized value of the log-likelihood function =-211.0858
Pseudo-R-Squared = .017608

Appendix I: Cross Tabulation Tables (Firm type)

Q2) Taking account of all relevant factors, including the reactions of your competitors, could your at present increase your profits by changing the price you charge?

Question 2	Profit Max	Sales Max	Combination	Other	Total
Yes	36 (23)	2 (40)	31 (36.5)	14 (21.2)	83
No	118(77)	3 (60)	54 (63.5)	52 (78.8)	227
Total	154 (100)	5 (100)	85 (100)	66 (100)	310 (100)

Q5) Do you own and directly control your own firm?

Question 7	Profit Max	Sales Max	Combination	Other	Total
Yes	67 (44)	3 (60)	35 (41)	20 (30)	125
No	87 (56)	2 (40)	50 (59)	46 (70)	185
Total	154 (100)	5 (100)	85 (100)	66 (100)	310 (100)

Q6) Is there a minimum amount of profit that you feel the company has to make? i.e. do you have a minimum profit constraint?

	Profit Max	Sales Max	Combination	Other	Total
Yes	108 (70)	4 (80)	54 (64)	43 (65)	209
No	46 (30)	1 (20)	31 (36)	23 (35)	101
Total	154 (100)	5 (100)	85 (100)	66 (100)	310 (100)

Q7) Are any members of your staff paid the national minimum wage?

Question 7	Profit Max	Sales Max	Combination	Other	Total
Yes	43 (28)	1 (20)	19 (22)	15 (23)	78
No	111 (72)	4 (80)	66 (78)	51 (77)	232
Total	154 (100)	5 (100)	85 (100)	66 (100)	310 (100)

Q8) Are all members of staff eligible for company benefits (e.g. entry to pension schemes, bonus schemes and share options)?

	Profit Max	Sales Max	Combination	Other	Total
Yes	94 (61)	4 (80)	50 (59)	41(62)	189
No	60 (39)	1(20)	35 (41)	25 (38)	121
Total	154 (100)	5 (100)	85 (100)	66 (100)	310 (100)

Q9) Does your firm give financial support to the local community (e.g. sponsorship, charitable donations)?

	Profit Max	Sales Max	Combination	Other	Total
Yes	130 (84)	5 (100)	71(84)	53(80)	259
No	24 (16)	0 (0)	14 (16)	13(20)	51
Total	154 (100)	5 (100)	85 (100)	66 (100)	310 (100)